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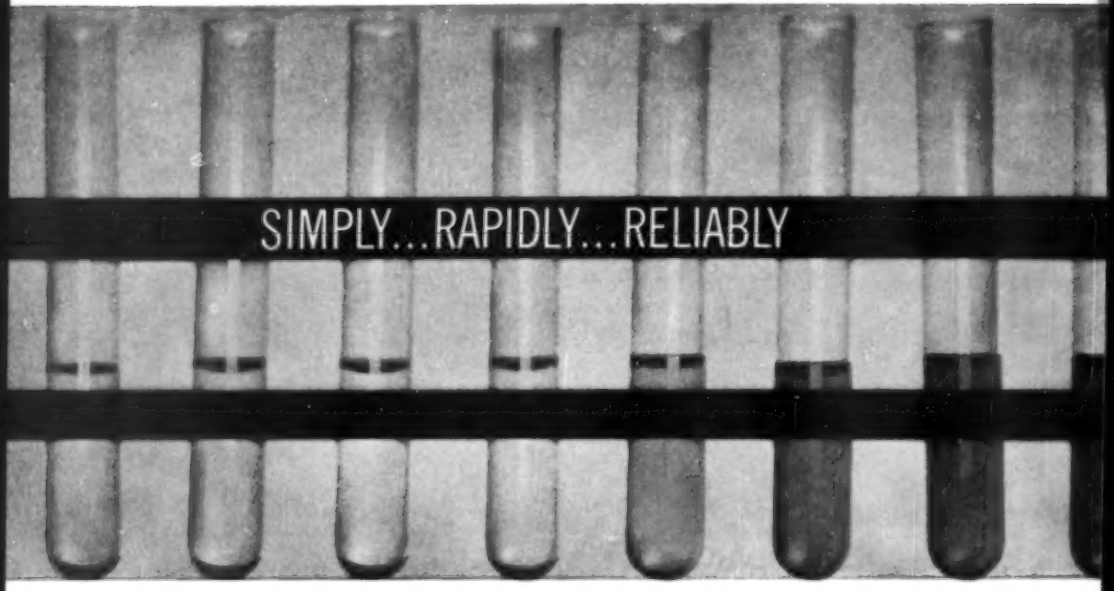

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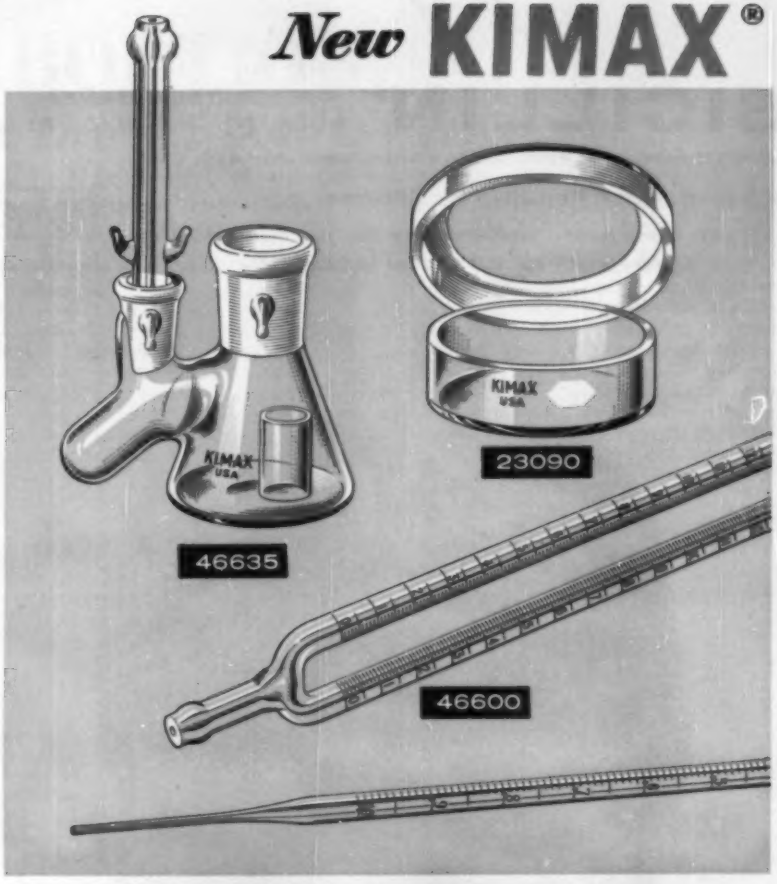

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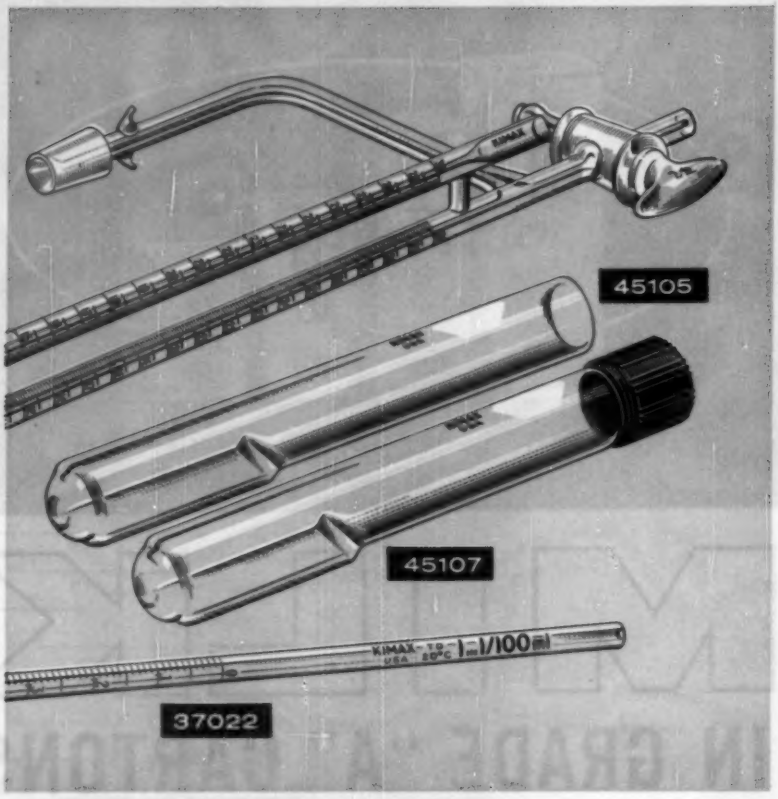

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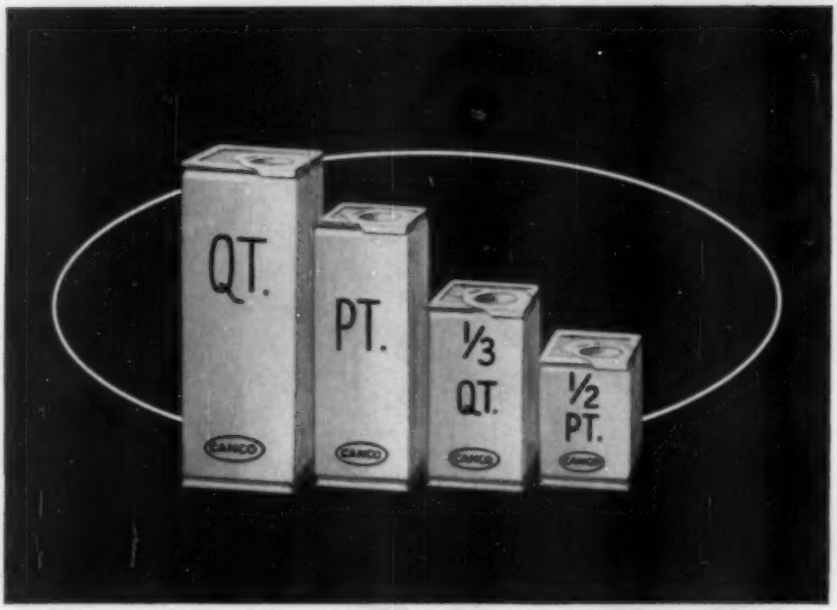

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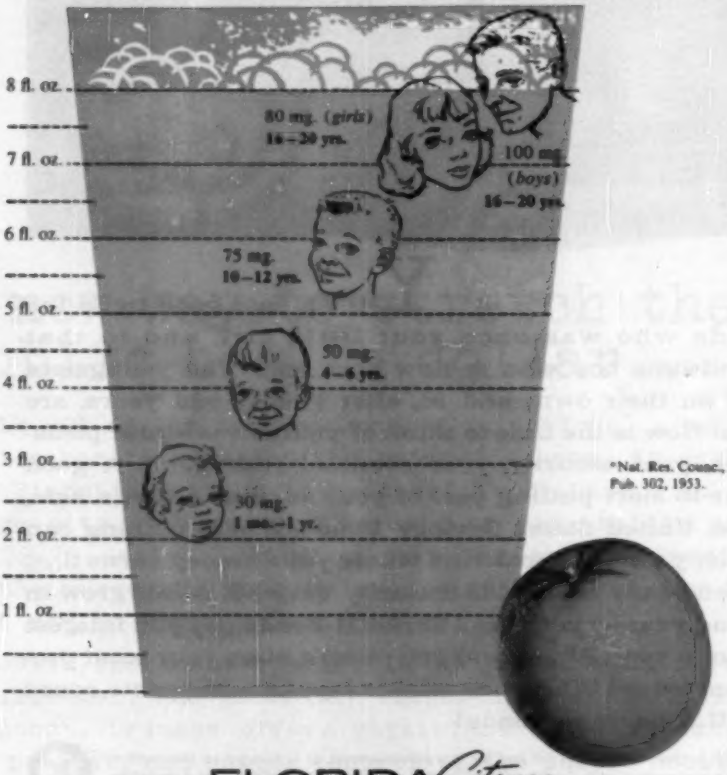

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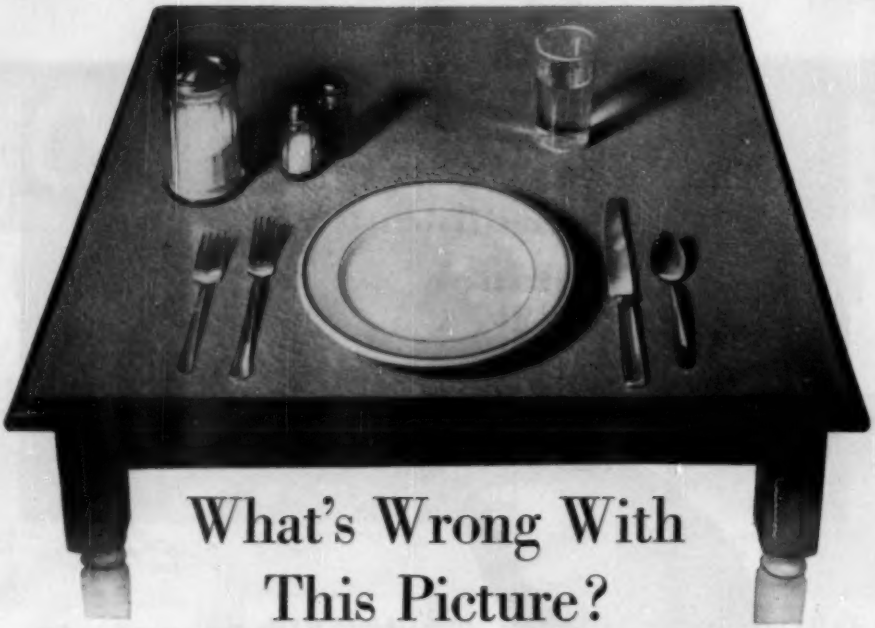

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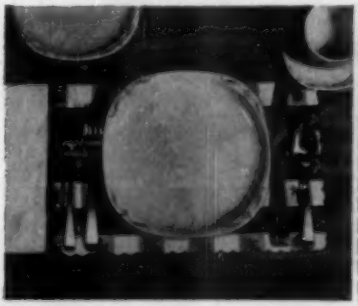

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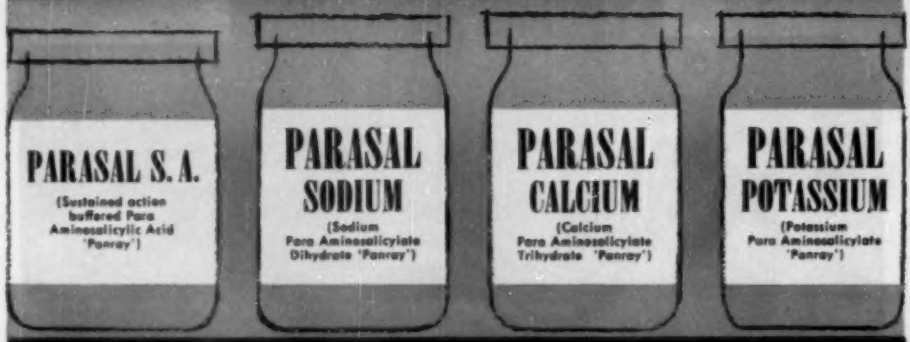

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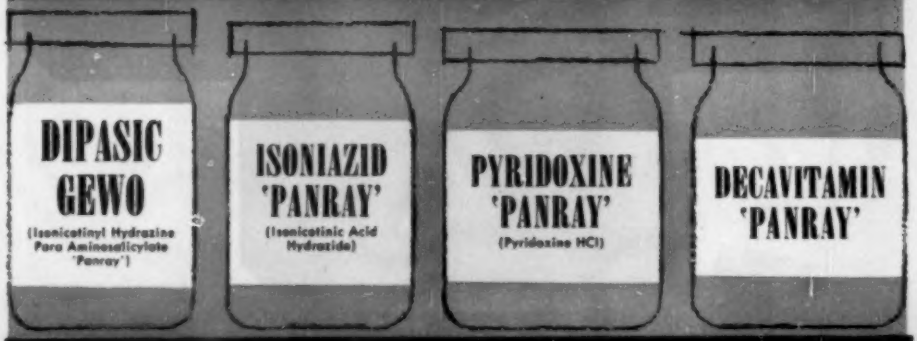

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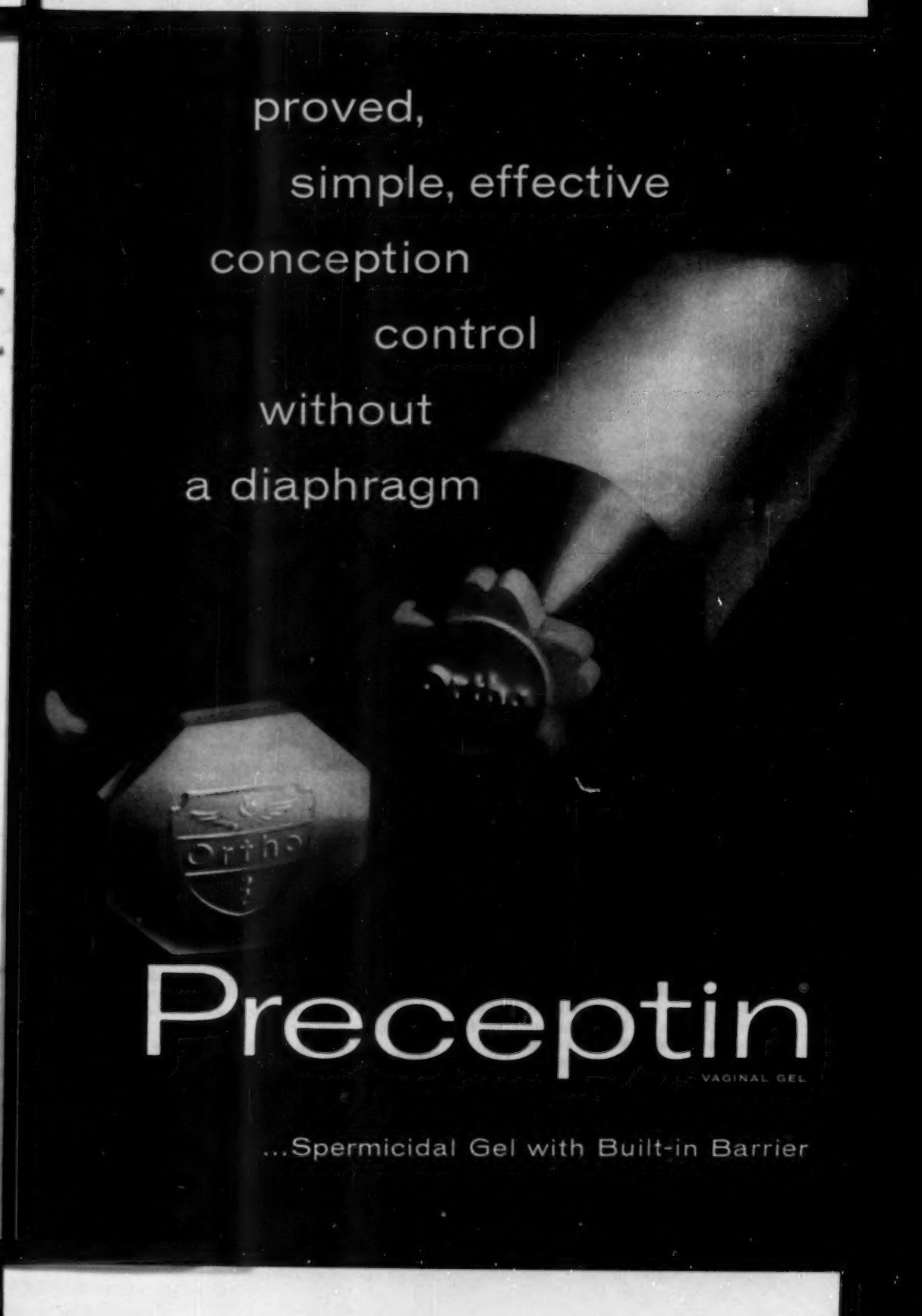
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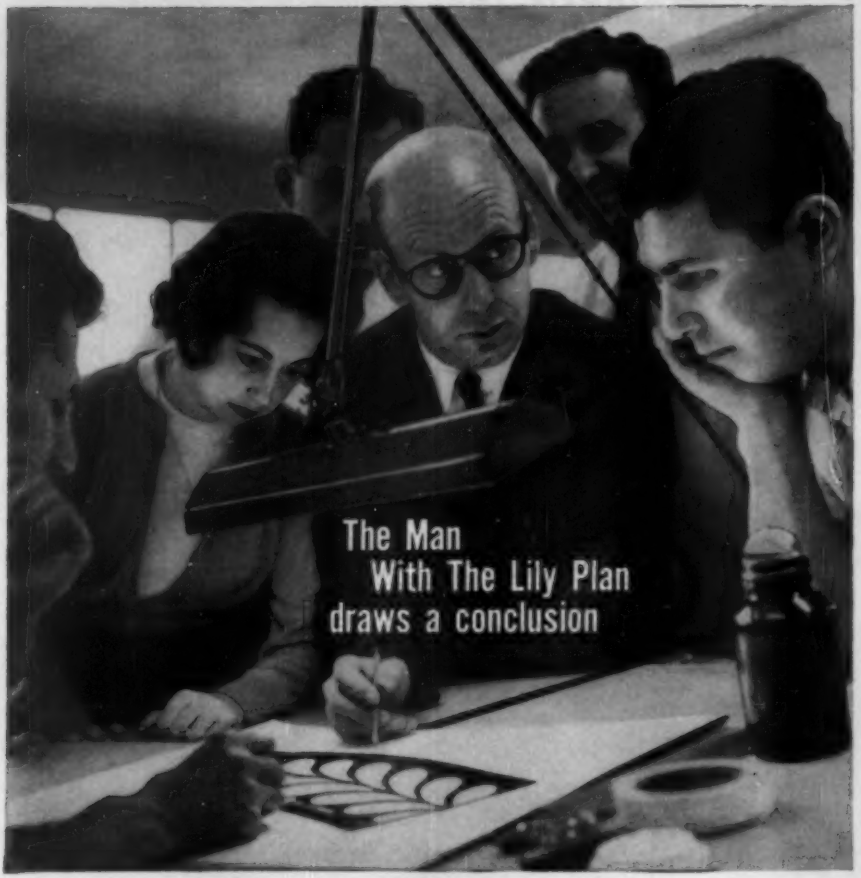

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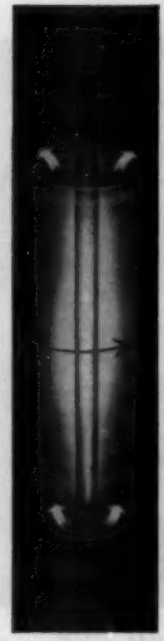

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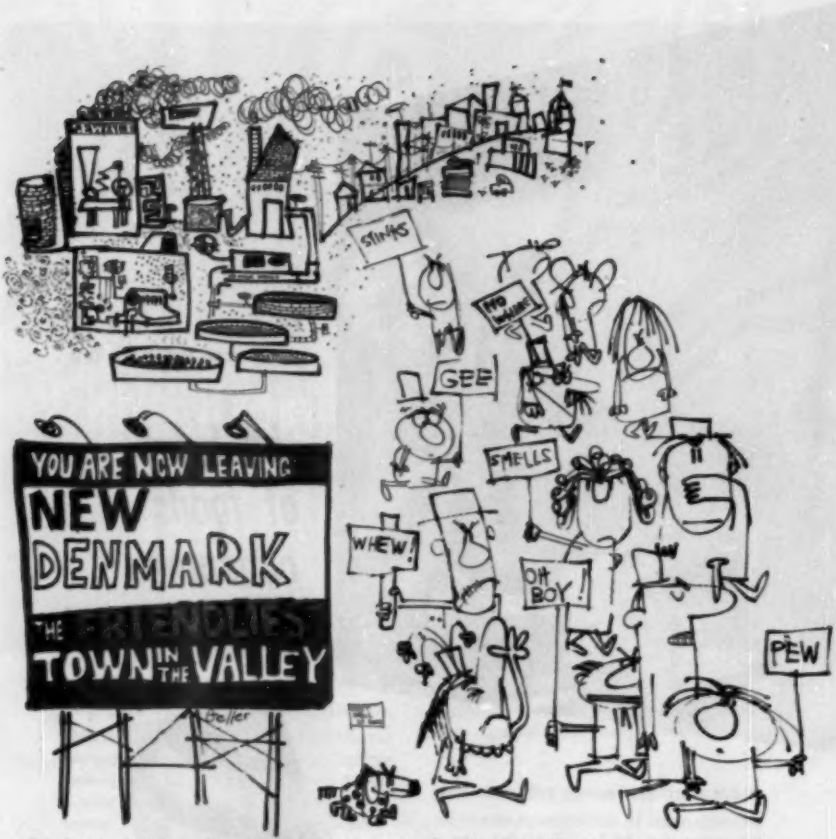

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(1) Bibby, B. G. Effect of Sugar Content of Foodstuffs on their Caries-Producing Potentialities. J. Am. Dent. A., *51*:293 (Sept.) 1955.

(2) Ludwig, T. G., and Bibby, B. G. Acid Production from Different Carbohydrate Foods in Plaque and Saliva; Further Observations Upon the Caries-Producing Potentialities of Various Foodstuffs. J. Dent. Research, *36*:56 (Feb.) 1957.

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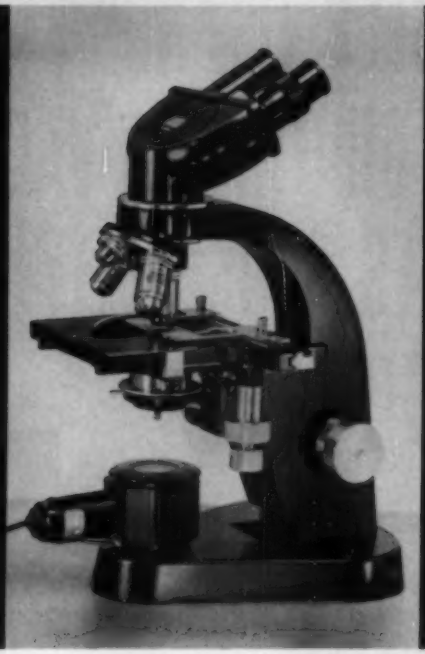

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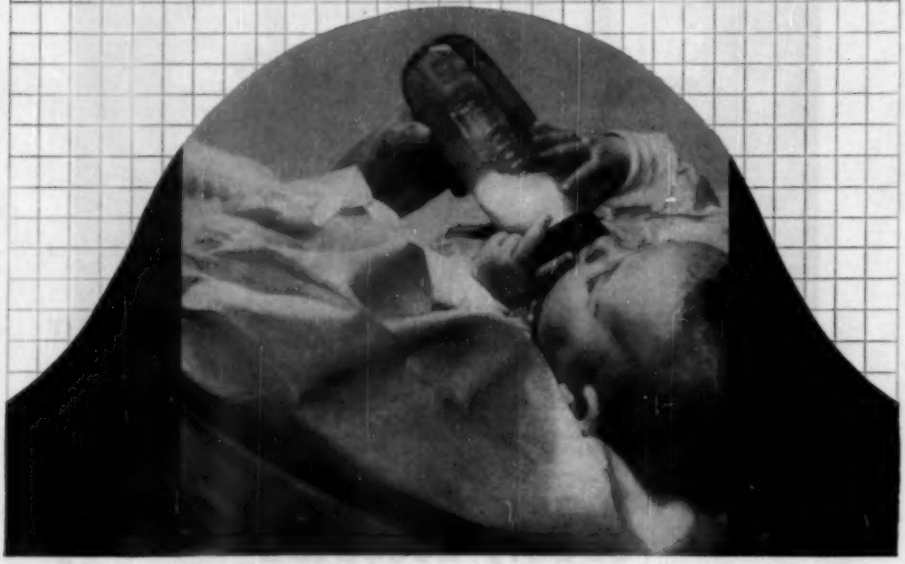

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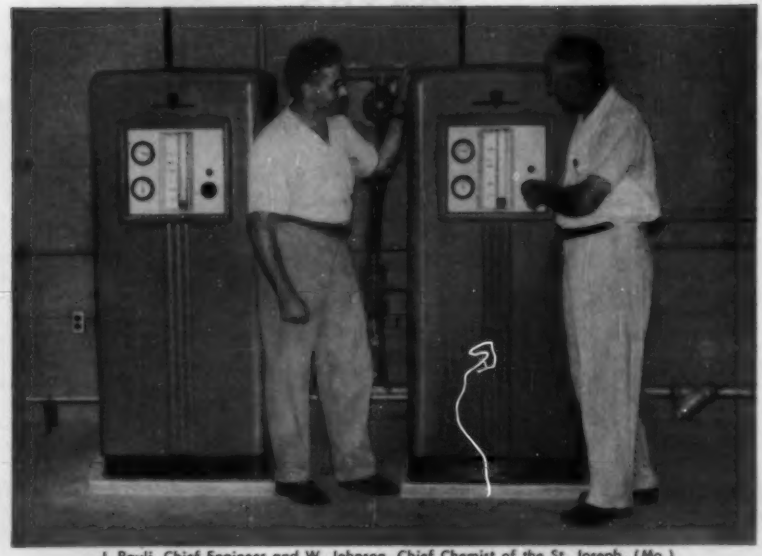

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Journal of Public Health

The tenth anniversary of the birth of the World Health Organization is fittingly marked in this issue of the Journal by Dr. Candau's review of its educational work. This is a basic task and the development of educational and training activities is bound to have a profound effect on world health.

THE MANPOWER PROBLEM IN HEALTH WORK—TEN YEARS OF WHO TRAINING ACTIVITIES

M. G. Candau, M.D., F.A.P.H.A.

As the activities of the World Health Organization unfolded during its first few years of existence, it became abundantly clear that one of the greatest, if not the greatest, obstacle to health progress is the shortage of trained personnel. There is in fact no country that has all the health workers it needs and, even in the most advanced parts of the world, there is a never-ceasing demand for more people in at least some of the many categories of personnel that are essential in forming the health team. Thus professional and technical education and training has developed into one of the major preoccupations of the World Health Organization, and training programs are now integral parts of almost every aspect of WHO work.

Regarded on a global scale the alleviation of, let alone the solution to, the manpower shortage in health work presents a task of staggering magnitude. For the training of the professional categories adequate preliminary education, highly qualified teachers, and elaborate facilities are needed which cannot be provided in short order. Even where these prerequisites are more or less satisfactorily fulfilled, the training time is so lengthy that decades, if not generations, are required to raise significant numbers of this type of personnel. The problem is further complicated by the ever-increasing specialization within these categories. It is, for instance, not enough to train general practitioners; at least a certain minimal number of specialists is also needed. Among nurses, additional training is required, for instance, for the public health nurse, for psychiatric and pediatric nurses, and for others. In addition to the professional categories, there are also the different types of ancillary personnel which are needed: x-ray and

laboratory technicians, physiotherapists, and others.

Since in a great many countries, no significant cadres of fully qualified personnel can possibly be trained in the foreseeable future and, since the needs for more health workers are immediate, the training of auxilliary personnel also becomes a matter of prime importance.

In its first 10 years of existence the World Health Organization has engaged in training activities in countries at all stages of technological development, from the simplest to what is considered the most advanced, as well as in training of all sorts and levels of personnel ranging from the very elementary, say, the training of "health assistants" and village midwives, to the highly specialized like, for instance, that of brain surgeons, anesthesiologists, and health physicists. The variety of the training programs assisted by WHO is so great that it might at first sight seem to be a conglomeration of training activities rather than the pursuit of a consistent educational and training program. However, there are very definite principles which guide all this work.

The common principle underlying all educational and training activities of the World Health Organization is to assist national health administrations in creating the cadres of health personnel most urgently needed by developing their national training facilities. In so doing, the preventive approach is consistently stressed in the training of any and every type of health worker.

In medical education, for instance, concerted efforts were made at the undergraduate level to assist in establishing chairs of preventive medicine in as many medical schools as possible. A series of conferences of professors of preventive medicine has been organized in Europe, South America, and in the Western Pacific Region to provide an opportunity for an exchange of ideas on how to teach the subject most effectively. A series of meetings of experts started in 1957 on how to introduce preventive aspects into the teaching of the basic medical sciences. At the graduate and postgraduate level the major part of WHO funds available for fellowships were devoted to training in the various branches of public health and preventive medicine. A Conference on the Public Health Training of General Practitioners set forth ideas on how the practicing physician could be made more public-health-minded and how some additional training might be given to him expeditiously without uprooting his practice. A joint project with the Harvard School of Public Health aimed at training numbers of teachers in preventive medicine to fill the numerous newly established chairs in Southeast Asia. Public health specialists and teachers of preventive medicine were as a rule included in the WHO visiting teams of medical scientists in order to emphasize the place and role of public health and preventive medicine in all phases of medical education.

The assistance of the World Health Organization has been extensively sought by governments in coping with the world-wide problem of the shortage of nurses. In the beginning nurses were requested from WHO only as members of the specialized malaria, tuberculosis, venereal diseases, and mother and child health teams which supported national efforts in these branches of public health. It was, however, realized very soon that the most substantial contribution which the Organization could make toward solving the problem of shortage was to assist in the improvement and expansion of existing national nursing schools, in the creation of new ones, and in the development of postbasic programs to give preparation in public health, in nursing, and in midwifery education.

The problem of providing the nurses required by any national health administration is not merely a numerical one.

Nurses are needed not only for hospitals, but also for various public health functions in health centers and in administrative and teaching positions. In many countries, however, the nursing schools aimed only at meeting the needs of the hospital and the basic training given was quite often insufficient to meet even those needs satisfactorily. Although there is considerable specialization in the nursing profession which required postbasic training, the basic training of the nurse has to be broad enough to qualify her for the greater variety of functions for which she is now responsible. Therefore, wherever WHO has been called upon to assist in nursing training programs, adjustments and changes in the basic curriculum have been made, particularly in the teaching of public health with adequate field practice, more training in maternity nursing, and more theoretical and practical instruction in preparation for administrative and teaching functions have been introduced. It is recognized that sound nursing education is dependent on good administration of the nursing service. Considerable attention is now being given to assistance in administration and a document "Principles of Administration Applied to Nursing Service" is being published.

The WHO nursing staff consisted of seven nurses in 1948, and at the end of 1957, 155 nurses and nurse-midwives were serving in 44 countries. This amounts to roughly one-fifth of the total of WHO field personnel, which is, in itself, indicative of the importance the nursing program has assumed in the work of the Organization.

Training in public health nursing has been given particular attention, and regular postbasic courses now exist, for instance, in Burma, India, Indonesia, Thailand, and Malaya.

The important series of nursing conferences and of seminars on various aspects of nursing serve as a stimulus for continued efforts at improving the standards of nursing throughout the world.

Sanitary engineering as a specialty has until recently been recognized only in the Western Hemisphere where it has contributed largely to the phenomenal improvement in health conditions during the past century. The sanitary engineer may serve in many different capacities, both within and outside public health organizations. In America the engineer has long been recognized as a responsible member of the public health team; in other parts of the world he is a relative newcomer to health agencies, but as his functions are more generally understood his value is increasingly appreciated. His responsibilities now far exceed his traditional duties of providing safe water supplies and disposing of sewage and refuse in a satisfactory manner. In fact, he is becoming more and more responsible for the control of all the factors in man's environment which are actual or potential health hazards. From the beginning the World Health Assemblies have stressed the fundamental importance of enviromental sanitation and the Organization has given high priority to the stimulation of sanitation programs. Sanitary engineers are relatively scarce even in the few countries where the profession has already developed deep roots and a tragic deficiency exists in the others. In many countries millions are going into the provision of long-overdue water supplies and sewerage systems, often enough without the appropriate personnel to plan, design, build, or operate these facilities—and with persons not always fully qualified to exercise judgment as to the suitability or economy of such facilities when they are provided from external sources.

Owing to this situation, WHO has considered the stimulation of training in sanitary engineering one of its most urgent tasks. Seminars in various as-

pects of sanitary engineering have been held in all the Regions and in some of them several such meetings have been conducted. A European Symposium on the Training of Sanitary Engineers took place in Oxford in 1955; short courses were assisted in many places; and WHO has provided aid to establish or assist undergraduate and postgraduate programs of instruction on a university level at Alexandria, Baghdad, Haifa, Madras, Manila, Mexico, Naples, Santiago de Chile, and São Paulo. Other educational programs are in course of development to meet the severe and increasing demand. For many reasons it is found desirable to conduct such educational and training programs on a country or regional basis, in close proximity to the geographic and cultural areas to be served.

In addition to the training of sanitary engineers, other personnel, such as health inspectors, technicians, and sanitary aides, who are indispensable members of the sanitation team, also have to be trained. Pending the day when sanitary engineers may be available to assume the responsibility for the direction of the sanitation services of their countries such auxiliary personnel may have to carry the burden of the sanitation programs. Courses for the training of sanitary inspectors have been assisted by WHO in Afghanistan, Brazil, Chile, Ethiopia, Liberia, Libya, Mexico, Nepal, Zanzibar, and many other countries.

There are certain countries in which for economic or educational reasons extensive programs for the preparation of fully trained professional health workers are not presently feasible. WHO has promoted and sponsored the preparation of auxiliary personnel in order to provide these populations with a form of service which, though not comparable to that found in the so-called developed countries, is nevertheless a vast improvement over that previously available through indigenous untrained practitioners, or not at all. Auxiliary personnel are often referred to as "partly-trained" health workers, but this is an evaluation based on a comparison with what are considered to be their corresponding numbers in developed countries. More accurately auxiliary personnel should be considered as trained, but for a limited type of work.

Auxiliary personnel are trained in one or more of the functions of medicine, nursing, sanitation, or other disciplines, and for varying lengths of time. The important feature is that courses are planned to meet the present needs of their communities, with provisions for modification as conditions change. An example of the dynamic nature of the training of auxiliary personnel is that of Fiji where three-quarters of a century ago a course of a few weeks' duration trained vaccinators in the face of a smallpox epidemic. When the crisis was over the trainees were used to provide a permanent service to the population, though admittedly this was little more than first aid. However, through the years the course of training has been modified so that now in a five-year course, following secondary education, the school is producing medical practitioners. With the assistance of WHO the final step to full medical school status is anticipated in a few years.

In most places the auxiliary medical worker, known as the health assistant, medical assistant, dispensary attendant, or by a host of other descriptive titles, has undergone one to three years of technical training after eight to 12 years of general education. He learns, in empirical terms, the rudiments of diagnosis and treatment of the most prevalent diseases in his country; he is taught a few simple laboratory procedures; he knows the technics of immunization and other preventive and sanitary measures; and he is relatively well versed in traumatic conditions, includ-

ing first aid and the prevention of infection. His colleagues in the fields of nursing, midwifery, and sanitation are trained in comparable fashion, though in some places one individual may combine several such functions. It is clear that comprehensive coverage of a country's populations, especially those in rural areas, with teams of these types of workers cannot help but have prompt beneficial effects on prevailing morbidity and mortality rates. It is toward the wider use of auxiliary personnel in countries where their services can be applied effectively that WHO is assisting by the provision of expert advice, teaching staff, and teaching equipment and supplies.

In the final analysis there are only two alternatives to any form of international training: the trainee either goes to a foreign country to learn or an instructor from a foreign country is brought to the country of the trainee to teach. There are, however, many variations on these two themes, each of which represents a particular type of project and practically all of which WHO has employed in its first 10 years of experience.

One of the most important means of carrying out the education and training program of WHO is by awarding fellowships. They enable nationals of a country to study abroad and to acquire such knowledge as is not available in their homelands and which they need in order to carry out a specific assignment on their return. As a rule the candidates must have exhausted the training possibilities in their own countries and must have had at least two years of experience in the field in which they wish to undertake further study. At times, however, these criteria cannot be applied—namely, when the aim of the fellowship is to introduce into a country hitherto nonexistent skills or specialties, and then beginners have to be sent abroad to learn them. Only exceptionally are fellowships granted to acquire basic professional training if this is not possible in the country of origin.

The subject of study is primarily determined by the needs of the countries and their plans to meet them. In providing assistance to governments in the form of fellowships the Organization heeds its long-term constitutional objectives, its general program of work for a specific period as approved by the World Health Assemblies and other relevant decisions of the World Health Assembly and Executive Board. One of these important decisions is to give preference to fellowships which are connected with other types of assistance in the particular field.

Thus, major emphasis was given to studies in public health and preventive medicine: 59 per cent of all fellowships were in the field of health organization and services (public health administration, nursing, sanitation, maternal and child health, health education, health statistics, mental health, dental health, nutrition, etc.), 28 per cent in communicable disease services, and 13 per cent in medical education and basic and clinical medical sciences.

During the past 11 years, 1947–1957, the World Health Organization has awarded 7,796 fellowships, not including grants for participation at educational meetings or for attendance at national courses or exchange of research workers. Candidates came from 153 countries and territories. Most of them have studied in more than one country, with 11,995 planned visits to 114 countries and territories. This is a remarkable increase in the number of countries of study. It is an indication of the increase in training facilities in many countries. WHO has contributed to this increase in a number of cases either by assisting with demonstration and training projects, by providing assistance to educational institutions, or by organiz-

ing or assisting in the establishment of training courses. Fellowships to WHO organized or assisted courses form 29 per cent of the total number of awards. Many are of short duration and of a temporary nature, but others, such as the courses in the regional Higher Institute of Nursing in Alexandria or the Health Training Centre at Gondar, Ethiopia, extend over a period of years and have become permanent training programs.

The manpower problem in health work always has presented and will never cease to present new and challenging aspects. Scientific and technological advances in general and progress in the health field in particular invariably create new training problems. The atomic age, for instance, puts its particular demands on health workers and educators; the traditional categories of personnel have to acquire new essential knowledge and skills and new categories of health personnel come into being. Two WHO Expert Committees explored in 1957 the main training problems related to the medical and health aspects of nuclear energy; one dealt with the introduction of radiation medicine into the undergraduate medical curriculum, the other with the relevant training that public health personnel now requires.

As difficult as the manpower problem in health work may be, it is most encouraging that governments are now fully aware of the importance of professional and technical education and training and visible progress is being made in creating more and better health workers throughout the world.

Dr. Candau is director-general, World Health Organization, Geneva, Switzerland.

Worth Repeating

"Science is an example par excellence of a liberal art—a deliberate selective recording of experience, which releases men from the narrowness and urgency of routine affairs, carries them beyond accidents and limitations of their lives, and makes it possible for their commerce with the world to have scope, order, and systematic consequences. It has been used as an instrument of . . . war, but its primary function is more humane and, as it were, aesthetic. And its relationship to practice is the relation of any fine and liberating art—it carries men beyond the foreground of their experience, and enlarges the dimensions of human choice by acquainting men with the alternative possibilities of things. Quite apart from its technological applications, it represents, to use an old philosophical expression, a 'final good'—something which has its own inner dynamism, goes its own way, and can give stability and direction to the rest of our lives."—Charles Frankel (Quoted by permission from: The Case for Modern Man, Harper & Brothers, 1956.)

Habituating drugs have been recognized as creating a significant public health problem. The following four papers discuss various aspects of this problem, with particular emphasis on the occupational aspects. Furthermore, the importance of the scientific experimental approach is stressed.

PROBLEMS RESULTING FROM THE USE OF HABITUATING DRUGS IN INDUSTRY

I. PHARMACOLOGY OF HABITUATING DRUGS

Havelock F. Fraser, M.D.

THE TERM habituating drugs must be defined and the limitations as well as the general purpose of the discussion outlined. Habituating drugs will be considered from a broad point of view, and drugs which induce physical dependence as well as those which are devoid of this property, but excel in their capacity to provoke psychic dependence, will be included.

Physical dependence refers to the development of an altered physiological state which requires continued administration of a drug to prevent the appearance of an illness called an abstinence syndrome. The level of dosage required for the development of physical dependence varies considerably with different drugs. For example, continuous administration of therapeutic doses of morphine for 28 days will create a moderate but definite degree of physical dependence, whereas administration of therapeutic doses of barbiturates for 90 days does not.

Psychic dependence involves the continuous use of a drug because of the improved well-being that it engenders; it may or may not be associated with physical dependence. Pharmacological considerations will be confined largely to describing the clinical picture when habituating drugs are (a) prescribed in customary doses but yet under such conditions that performance is impaired, or (b) they are used under conditions of abuse. Beneficial effects of these drugs will not be emphasized. For example, secobarbital is a good hypnotic and is used extensively to relieve various types of anxiety. Instead, attention will be directed to the fact that certain effects of secobarbital (hypnotic and impairment of coordination) may be detrimental under such conditions as operating motor vehicles or potentially dangerous machines. Although alcohol is by far the most important habituating drug, its pharmacology has already been described in detail, consequently emphasis will be placed on the fact that under continuous and excessive use physical dependence to alcohol develops. The fact that certain persons are likely to become addicted to opiates, barbiturates, alcohol, and certain tranquilizers should in no way preclude the judicious use of these valuable drugs in medical practice. For convenience of presentation, habituating drugs will be classified

with respect to whether or not they induce physical dependence.

Drugs Which Produce Physical Dependence

Opiates and opioids (synthetic analgesics) are the classical examples of drugs in this category. Although their abuse constitutes an important public health problem, they do not affect nearly as many people as do other addictions. For example, the commissioner of narcotics estimates that only one person in 3,000 is addicted to an opiate-type of drug. Since their abuse is not an important problem in industry, and since the clinical picture of opiate addiction has been well documented, they will not be discussed further.

The most important group of drugs which produce physical dependence are central nervous system depressants of a diverse chemical structure. They include alcohol, barbiturates and certain tranquilizers, of which meprobamate (Miltown) is the most widely used by nonhospitalized individuals. It is generally accepted that chronic administration of opiates or opioids leads to tolerance and physical dependence, with precipitation of a characteristic abstinence syndrome when discontinued abruptly. The preponderance of evidence now indicates that if barbiturates, alcohol, or certain of the tranquilizers are taken under conditions of chronic abuse, tolerance and physical dependence develop and a characteristic abstinence syndrome (which differs from that of the opiates) develops when alcohol, barbiturates, or meprobamate are discontinued abruptly. Because of their extensive clinical use, as well as abuse, they will be considered in detail.

Alcohol

Dr. Marvin Block,[1] chairman of the AMA Committee on Alcoholism, recently pointed out that chronic alcoholism in the United States has reached an alarming level and directly affects about 20 million people. These are the families of alcoholic patients who are estimated to be almost five million. One tragic thing about alcoholism is that until recently the problem of coping with it was left primarily to law enforcement and social agencies, because it was considered to be primarily a problem of morals. Only recently has the public as well as the medical profession begun to accept it as an illness that requires medical attention. But there is now evidence of over-all medical leadership, as witnessed by the approval in the House of Delegates of the American Medical Association of a resolution urging that all cooperative patients with a diagnosis of alcoholism be admitted without prejudice to general hospitals.

Whether physical dependence to alcohol develops is somewhat controversial. Bowman and co-workers[2] stated that few cases of delirium tremens occurred in 10,000 admissions of alcoholics to Bellevue Hospital, even though alcohol was abruptly discontinued. Although evidence such as this appears impressive, it is not conclusve. A large proportion of the alcoholics admitted to general hospitals have been intoxicated for only a brief time. Therefore, they would not be expected to develop serious manifestations of abstinence after abrupt withdrawal of alcohol.[3] Furthermore, as Kalinowsky[4] has pointed out, even though alcohol is withdrawn, such patients are almost invariably given some type of sedative medication such as paraldehyde, barbiturates, or chloral hydrate. Such medication might amount to substitution of a drug with equivalent effect to that of alcohol. Also, total withdrawal of alcohol may not be necessary for precipitation of the abstinence syndrome since, as in the case of barbiturates, merely a reduction in the dose of alcohol may be sufficient to precipitate such symptoms.[3]

Victor and Adams[5] studied 266 pa-

tients who were consecutively admitted to the Massachusetts General Hospital for treatment of alcoholism. After intake of alcohol was stopped, 92 of the 266 patients had acute alcoholic tremulousness, 30 had tremor and transitory hallucinations, six had acute auditory hallucinosis, 14 had typical delirium tremens, 11 had atypical delirious-hallucinatory states, and 32 had "rum fits" (convulsions). Victor and Adams considered that all the above syndromes were attributable to abstinence since they were able to relate them, in most instances, to cessation or reduction of drinking.

The first experimental demonstration that alcohol can produce physical dependence was made by Isbell and coworkers.[3] They gave 10 male volunteers, who were former morphine addicts, 266 to 489 ml of 95 per cent alcohol daily for seven to 87 days. The objective was to maintain each subject continuously in the maximum state of alcoholic intoxication, which was compatible with safe ambulatory management, for a period of at least six weeks, and then to discontinue alcohol abruptly. Alcohol was given orally at intervals of from one to two hours from 6 a.m. to 12 midnight, with supplementary drinks at 2 a.m. or 3 a.m. Four patients, who withdrew from the experiment after 34 or fewer days of drinking, had only mild symptoms after discontinuation of alcohol. The duration of "chronic intoxication" in these four subjects was considered insufficient for a high degree of physical dependence to develop. Six of the 10 patients drank for 48 to 87 days. Convulsions and delirium did not develop in any of the subjects during the period of chronic alcohol administration. Following abrupt withdrawal of alcohol, all six patients who drank for more than 48 days developed tremor, marked weakness, nausea, vomiting, diarrhea, hyperreflexia, fever, and hypertension. Two of the six patients had seizures, three had a frank delirium, two had transient visual or auditory hallucinations, and one escaped both convulsions and hallucinations. These phenomena occurred despite the ingestion throughout the periods of intoxication and withdrawal of an adequate diet, which contained multiple vitamin supplements.

These experimental studies confirm the clinical studies of Kalinowsky,[4] Goldberg,[6, 7] Sheps,[8] and Victor and Adams[5] to the effect that physical dependence on alcohol develops in chronically intoxicated persons and that one cause of delirium tremens is abstinence from alcohol.

Treatment of physical dependence on alcohol is the simplest part of therapy. The manifold psychiatric problems and the many associated pathologic changes which are involved, particularly those of a nutritional nature, will not be considered here. Likewise, acute alcoholic intoxication will not be discussed. The tip-off that physical dependence to alcohol has developed may be a statement by the patient that he must save a drink for when he gets up in the morning, or that he patronizes the neighborhood bar before going to work. If alcoholism has progressed to this degree, the patient is in serious condition and should probably be institutionalized for appropriate treatment. When hospitalized, it is possible to withdraw alcohol completely and abruptly, but, as in the case of dependence on opiates and barbiturates, it is wise to substitute a drug with effects equivalent to those of alcohol in order to avoid convulsions, delirium, or both. Several of the barbiturates, paraldehyde, and chloral hydrate, are potent depressants of the central nervous system and may be substituted for alcohol, then gradually withdrawn. These sedatives have been used routinely in treating alcoholics for many years, but the physicians using them have not always realized that such symptoms as anxiety,

insomnia, weakness, tremulousness, and even convulsions and hallucinations are usually caused by lack of alcohol rather than by its direct toxic effect. Confusion on this point has arisen in part because symptoms appear very rapidly after drinking has stopped, and because complete cessation of drinking is not necessary to precipitate abstinence symptoms. Early appearance of symptoms is attributable to the relatively rapid metabolism of alcohol (as compared with most opiates and barbiturates) and to the fact that definite symptoms of abstinence appear when blood alcohol values reach 85 to 100 mg per cent.[8, 9] In fact, severe symptoms, including convulsions, may appear as early as 12 hours after the last drink.[3] Complete cessation of drinking is not necessary to provoke abstinence symptoms, since a reduction of 25 per cent in the average daily intake of alcohol will result in a fall of blood alcohol values to zero.[3] Acceptance of the concept that abstinence from alcohol causes the symptoms, makes it obvious to the clinician that it is necessary to administer sedatives in adequate dosage to prevent symptoms of acute withdrawal from alcohol, then to reduce gradually the dose of the sedative over a period of days.

Barbiturates

Abuse of a bariturate occurs under two forms: acute and chronic intoxication. Acute intoxication with barbiturates accounts for approximately 25 per cent of all patients with acute poisoning admitted to general hospitals, and more deaths are caused by barbiturates, either accidentally ingested or taken with suicidal intent, than by any other poison. That barbiturates must be extensively abused is indicated by the figures on production, which is currently at a sufficient rate to provide 24 capsules of 0.1 gram (1½ grains) for every individual in the United States.

The symptoms of barbiturate intoxication resemble those of alcoholic intoxication. However, it is not appreciated that even small therapeutic doses of barbiturates—0.1 gm of pentobarbital or secobarbital—may significantly impair behavior. For example, Goodnow, et al.,[10] employing a double-blind technic, reported that oral administration of 0.1 gm of pentobarbital impaired tapping speed, auditory reaction time, ability to name opposites, and memory of digits four hours after ingestion of the drug in 30 "normal" subjects. Highly suggestive, but not statistically significant, changes in the same direction were still detectable 14 hours after medication. Felsinger, et al.,[11] were able to demonstrate in 20 "normal" subjects, as long as eight hours after injection of 0.1 gm of pentobarbital, impairment of visual perception, recall of learned nonsense syllable lists, and the ability to make correct arithmetical computations with a specified time. We have also investigated this problem[12] and have shown that either 0.4 gm of secobarbital or pentobarbital divided into four equal doses daily impaired significantly the performance of healthy males in three types of psychomotor tests—reaction time, steadiness, and ability to maintain a stylet on a moving target, Figure 1. While performance was grossly impaired on the third and fourth day that 0.4 gm of either pentobarbital or seconal was given, thereafter it progressively improved, and by the seventh day, as judged by these tests, impairment was only slight. Furthermore, tolerance appeared to develop more rapidly in situations where there was motivation (test for reaction time or coordinating ability) as compared with situations in which no particular motivation existed (hours of sleep), Figure 1.

Hill and associates[13] tested the reaction time of subjects given 250 mg of pentobarbital sodium under three condi-

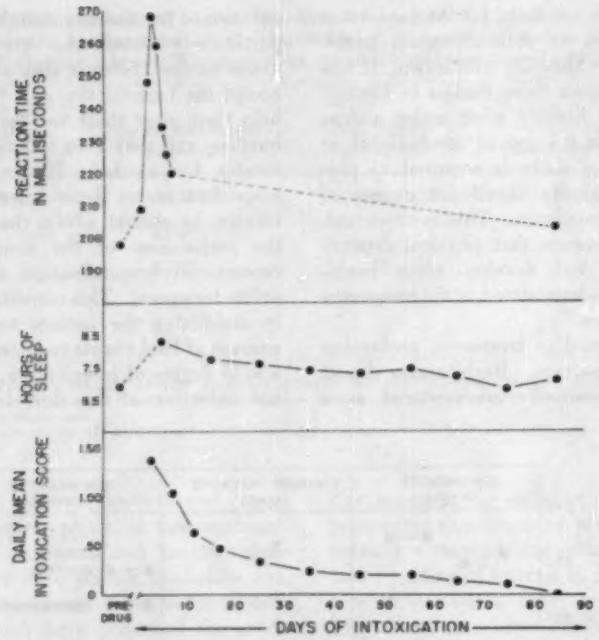

Figure 1—Pre-drug observations were made for 10 days, then either 0.4 grams of secobarbital or pentobarbital were administered daily for 90 days to a total of 18 subjects. The average effects of both drugs on daily mean intoxication score (incoordination, etc.), hours of sleep, and reaction time in milliseconds are illustrated. Initially, performance was impaired but tolerance progressively developed.

tions of motivation: low, standard, and high. Under low incentive conditions, pentobarbital impaired (lengthened) reaction time; under standard incentive conditions, the reaction time was not significantly altered; but under high incentive conditions, pentobarbital shortened reaction time significantly, Figure 2. These experiments show that one should be very careful when interpreting the effects of drugs on performance when motivation is not controlled. In a competitive situation with high motivation, performance may not be impaired by a given dose of a drug, but under conditions of low motivation performance may be greatly impaired by the same dosage.

There is no longer any doubt that chronic abuse of barbiturates leads to physical dependence and the development of an abstinence syndrome resembling that seen on withdrawal of alcohol (delirium tremens) if discontinued abruptly. The relationship of chronic dosage of pentobarbital and secobarbital to the development of physical dependence is shown in Table 1. It is noted that when 18 patients received these drugs in the maximum dosage which each could progressively tolerate (0.9 to 2.2 gm daily) 14 had convulsions and 12 had delirium when the barbiturates were withdrawn abruptly. On the other hand, among 18 patients who

received 0.4 gm daily for 90 days, none had seizures or delirium when barbiturates were abruptly withdrawn. It was concluded from these studies in Lexington that in healthy adult males a dose greater than 0.4 gm of secobarbital or pentobarbital daily is required to produce a clinically significant degree of physical dependence. This is important, because it means that physical dependence does not develop when barbiturates are administered in the customary clinical doses.

With regard to treatment, prevention is most important. Barbiturates should not be chronically administered as a sedative to emotionally unstable persons, particularly those who are prone to abuse alcohol, because they are liable to accept the barbiturates as a "crutch" to help them over their various emotional hurdles, and may even substitute barbiturates for alcohol. If the physician suspects a severe dependence on barbiturates, he should advise the patient of the seriousness of the condition and recommend hospitalization and appropriate treatment. This consists primarily in stabilizing the patient on the least amount of barbiturate required to induce a mild degree of intoxication, then gradual reduction of this dose by no more

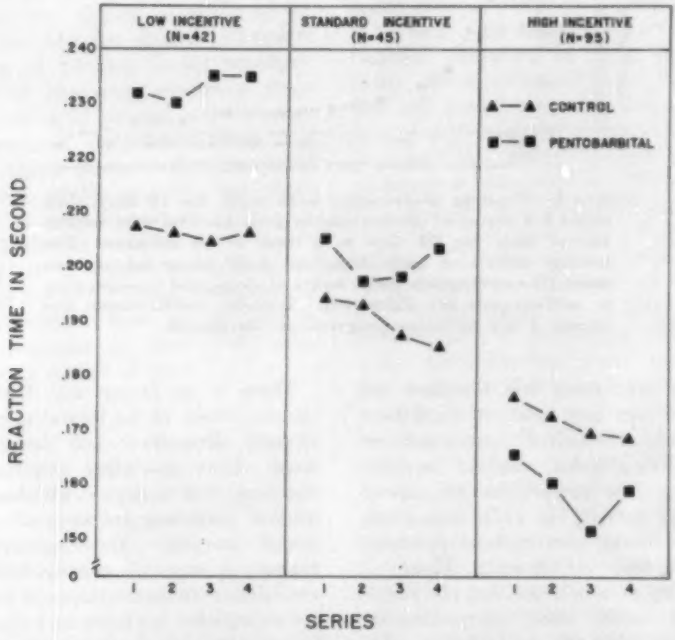

Figure 2—Effects of 250 mg of secobarbital on mean reaction time as compared with control (no drug) under various levels of incentive. The letter N refers to the number of subjects. Each series consisted of 18 consecutive manual reactions to light flashes presented at intervals of 15–20 seconds. The four series were separated by "rest" periods of 15 minutes each. These data were compiled from experiments of Hill, Belleville, and Wikler at the NIMH Addiction Research Center, Lexington, Ky.

Table 1—Relationship of Various Chronic Dosages to the Intensity of Physical Dependence as Measured by the Incidence of Convulsions and/or Delirium Following Abrupt Withdrawal of Secobarbital* or Pentobarbital*

Daily Dosage of Barbiturate (Grams)	Days of Intoxication in Hospital	Total Number of Patients	Number of Patients Having	
			Convulsions	Delirium
0.9–2.2†	32–144	18	14	12
0.8**	42–57	5	1	0
0.6**	35–57	18	2	0
0.4**	90	18	0	0
0.2**	365	2	0	0

* Since both drugs induced equivalent physical dependence, data respecting them have been pooled.
† Drugs were continually administered on an individual basis in the maximum amount which was compatible with safe ambulatory management.
** Drugs were continually administered at this level daily, irrespective of individual differences.

than 0.1 gm daily. Reduction of dosage is the simplest phase of the treatment. The most important and the most difficult feature is to change the habits and, if possible, correct the emotional difficulties which have provoked the excessive use of barbiturates. This can only be accomplished by extended psychiatric and follow-up treatment.[14, 15]

Meprobamate (Miltown, Equanil)

There are no published statistics on the production or use of meprobamate, but all physicians are aware of the extended application of this drug in treating a variety of clinical conditions, which include assorted anxiety states, neuroses, muscle spasm of diverse etiology, alcoholism, and headache. In many instances the disease being treated requires continuous therapy.

Although meprobamate and barbiturates are used in treating many of the same clinical conditions, the depressant effect of meprobamate on the central nervous system is not nearly as great as that of barbiturates, in doses usually prescribed. It may also be differentiated from other tranquilizers such as chlorpromazine and reserpine in this respect. For example, in suitable doses, chlorpromazine and reserpine produce in the monkey a state of tranquility characterized by a loss of interest in environment, loss of interest in food, and catatonia. The effects seen after administration of meprobamate are quite different. The animals lose all aggressiveness but they do not show listlessness or catatonia. They are playful, eager to accept food, and are interested in their environment.[16] In a double-blind study,[17] the effects of meprobamate chronically administered for one week in a dose of 400 mg daily to 14 women were compared with those of a placebo given on a similar schedule to the same patients. At the end of the week, patients were evaluated in respect to alertness, attention, reaction time, speed and accuracy in responses and movement, and speed and accuracy in solving problems. Their performance after receiving meprobamate was similar to that observed after having received a placebo.[17] Marquis, et al.,[18] have shown in a group of 50 "normal" subjects (36 men and 14 women) that meprobamate in a dosage of 800 mg produces no behavioral toxicity, as measured by tests for driving ability, steadiness, and vision. Although

2 oz of whiskey administered to the same subjects impaired performance in some tests, combining it with meprobamate produced no synergic effect. In another experiment [18] in connection with a regular midterm examination in a college psychology course, a class of 276 students, after being assured that it would have no serious effects, agreed to take a pill of unstated composition one hour before the examination. Selected at random, 138 students received 400 mg of meprobamate, and 138 received 5 grains of acetyl salicylic acid. It is reported that performance on the test was not impaired in those who received meprobamate; in fact, it was slightly better. There was a tendency for the meprobamate group, especially the women, to report less apprehension and stress during the examination. Although meprobamate produces drowsiness and incoordination if the therapeupeutic dose is considerably exceeded, this is not a conspicuous feature of its pharmacology, and such toxic effects may be avoided by reduction in dosage.

Evidence is steadily accumulating that physical dependence on meprobamate develops, since patients who have been chronically ingesting this drug in large amounts may have grand mal convulsions when it is abruptly withdrawn. Barsa and Kline [19] observed single convulsions in six of 25 schizophrenics who had received 2.4 gm of meprobamate daily for six months; Lemere [21] noted a seizure in one patient who had taken 6.4 gm of meprobamate daily for a month; and Tucker and Wilensky [20] reported convulsions in two of 32 psychotic patients who had received 1,600 mg of meprobamate, increasing to 4,800 mg daily for three months. Furthermore, both Lemere,[21] and Tucker and Wilensky,[19] commented on the postwithdrawal anxiety and tension which occurred in a significant percentage of cases. Recently, Essig and Ainslie [22] have reported that a male patient who had been taking 4 gm of meprobamate daily for about three months had nervousness, headache, and one grand mal convulsion after meprobamate was discontinued. In another female patient who had been ingesting 3.2 gm of meprobamate daily, abrupt withdrawal of the drug was followed by complaints of anxiety, insomnia, excess salivation, and headaches. Although a convulsion did not occur, abnormal EEGs were observed from 29 to 77 hours after the last dose of meprobamate. These observers found no definite evidence of abstinence after withdrawal of meprobamate from two patients who had been taking 1.6 gm daily.

Essig [23] administered 814, 656, 656, and 709 mg/kg of meprobamate to four dogs for 124, 164, 178, and 188 days, respectively. When meprobamate was abruptly withdrawn they had one, three, five, and five convulsions, respectively, with the last three dogs dying. This animal experiment confirms the human studies, to the effect that under conditions of chronic use and abuse physical dependence to meprobamate develops. Although the incidence of physical dependence on meprobamate appears to be quite low, it is recommended that manufacturers who introduce new drugs that are central nervous system depressants be required to submit pharmacological data, derived from animal experiments, indicating the physical dependence characteristics of the new drug. Further evidence to support this position is the fact that Doriden (alpha-ethyl-alpha-phenyl-glutarimide), although chemically unrelated to barbiturates, markedly depresses the central and autonomic nervous systems, and has recently been reported by Ossenfort [24] to produce physical dependence in man. It is not known whether 2-p-chlorophenyl-3 methyl-2, 3-butanediol (Ultran) produces physical dependence in man, but Swinyard and co-workers [25] classify it in the same category as meprobamate,

on the basis of results of tests involving chronic administration to mice.

Treatment for physical dependence on meprobamate and similarly acting CNS-depressant drugs should follow the principles outlined for physical dependence on barbiturates.

Chlorpromazine and related derivatives and reserpine probably do not produce physical dependence; furthermore, neither shows evidence that it induces "psychic" dependence.

Drugs Not Producing Physical Dependence

The outstanding examples of drugs in this category are cocaine, the amphetamines, and marihuana. In general, these drugs are not taken in excess by large segments of the population, and it may be stated as a general maxim, also, that drugs which do not produce physical dependence do not constitute important public health problems, except for isolated segments of the population. These segments may be geographic. For example, abuse of cocaine by chewing of cocoa leaves, as indulged in by some South Americans; or temporary excesses for certain segments of a given population, for example, excessive use of amphetamine (benzedrine) by young males in Japan, and by truck drivers in the United States. Tolerance to these drugs is limited.

In the United States, cocaine is taken intravenously under conditions of abuse, and its use is usually associated with the concurrent abuse of heroin or morphine. Cocaine produces a transient sense of ecstasy but the toxic effects outlast the euphoric effects, so users become very nervous. It induces mydriasis, sweating, hypertension, and hyperactive reflexes. With excessive doses, optical hallucinations are common, but the most dangerous toxic sign is paranoid delusions. For example, a cocaine addict may injure an individual, who may not even have seen him, because the addict imagines he is being attacked. The acute toxic effects of amphetamines include restlessness, dizziness, increased reflexes, tremor, insomnia, loquaciousness, tenseness, and irritability; and with larger doses, users may show confusion, hallucinations, and assaultiveness. Fatigue and depression usually follow the central stimulation. The driver of a motor vehicle or machine operator, while taking amphetamines (benzedrine) may have an accident because of dizziness, confusion, or irritability. Frequently, patients taking barbiturates to excess may attempt to overcome their depressant action by the use of benzedrine. At present, the most prevalent use for the amphetamines is as an agent to suppress the appetite for weight reduction, and dextroamphetamine is most commonly employed for this purpose. The amphetamines are also used to treat fatigue. For controlling obesity and fatigue, they are usually dispensed on a prescription basis and, although chronically taken, abuse seldom occurs. Although marihuana is included in the Harrison Narcotic Act, it does not produce physical dependence and its use is limited to thrill-seeking individuals who start using drugs primarily for this reason. Its abuse is not an important problem in industry, so it will not be discussed further.

Summary

Habituating drugs which impair performance and induce physical dependence provoke the most problems in industry and in the general practice of medicine. The most universal offenders in these respects are alcohol and barbiturates. Opiate-type drugs induce physical dependence, of course, but their abuse does not affect as many individuals. Other drugs which induce physical dependence under conditions of abuse are meprobamate and Doriden.

Habituating drugs which do not provoke physical dependence include cocaine, marihuana, and the amphetamines. While drugs in this category may produce deleterious effects, their abuse is usually restricted to more isolated segments of the population.

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II. EFFECTS OF ANALEPTIC AND DEPRESSANT DRUGS UPON PSYCHOLOGICAL BEHAVIOR

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THE PRINCIPAL problem confronting anyone concerned with the behavioral effects of the drugs being considered consists in discriminating fact from speculation and from popular fantasy. Usually, this is a vexing task and, at times, an impossible one. And so the necessity of conducting extensive programs of systematic investigation becomes bleakly apparent.

Our investigations have been undertaken to determine how the proficiency with which aircrews perform their jobs is likely to be affected by various commonly used drugs. The general method has been to select those behaviors or abilities that are identical with or basic to actual job requirements, to control or experimentally manipulate relevant psychological and physiological parameters, and to assess, objectively and quantitatively, changes in these behaviors or abilities, resulting from the drug administered.* Throughout the presentation of the obtained findings, it is important to keep in mind the fact that the experimental populations consisted of normal, healthy, male human subjects.

Our interest in the analeptic preparation occurred as a consequence of our concern with fatigue and proficiency decrement which has become an important problem, because of the possibilities and complexity of long-range flight. True, experience and study during World War II did not yield very favorable endorsement for the analeptics then in current use, pervitin and benzedrine. Nevertheless, it did seem worth while to assess the effects of the newer analeptic preparations upon proficiency during prolonged work. The first question to be explored concerned the extent to which these preparations would postpone the onset of fatigue and the consequent deterioration of proficiency. Accordingly, comparative studies were conducted to determine the mitigative efficacy of d-amphetamine, mephentermine, pipradrol, and methyl-caffeine.

The task performed by the subjects required them to monitor several simulated aircraft indicators, and to correct for their random driftings by appropriately manipulating simulated aircraft controls, so as to maintain concurrently all indicators within their respective limits of tolerated error. It is this requirement of concurrency or integration of effort which, in necessitating a high level of sustained alertness and a continuous exercise of judgment, makes this a fairly exacting task. The amount of time that these indicators have been concurrently maintained within their limits is electrically accumulated and taken to represent the subject's proficiency.

The subjects first received a period of practice at this task which was sufficient for a substantial degree of mastery. Following this, they received their randomly assigned pharmacological treatment in standard dosage and were immediately returned to the task for a prolonged period of work. These studies revealed the following results:

* All medications were prepared by the Department of Pharmacology and Biochemistry, and medical attention was immediately available in the event of untoward reactions. No untoward reactions occurred.

1. In the placebo and drug-free groups, deterioration of proficiency began to occur during the first hour of this exacting work and continued in a strikingly progressive manner.

2. Onset of deterioration was significantly postponed and to a very practical extent by all analeptic preparations administered.

3. The degree of mitigation afforded by the different preparations varied considerably.

4. The two most efficacious preparations were found to be mephentermine and d-amphetamine.

In view of the latter finding and because of its current, widespread use, d-amphetamine or dexedrine was selected for extensive investigation designed to answer other practical questions. For example, how do the effects of this particular preparation interact with those of hypoxia in the prolonged work situation? The question can be stated in a more basic manner—Does a standard dosage of this analeptic act to "alert" the organism or does it "drive" the organism? Should this preparation "drive" the organism and in so doing incur a substantial increase in physiological costs, then such an increase in conjunction with oxygen impoverishment might have the effect of attenuating the characteristic ability of dexedrine to sustain proficiency. To proceed further with this possibility, at some point during prolonged exacting work, dexedrine might even have the effect of augmenting the combined effects of hypoxia and fatigue.

To obtain an answer to the initial question, subjects were appropriately familiarized with mask breathing and leak checks; a period of practice at the task described earlier; and then, following administration of experimental treatments, were returned to the task for four hours of work. The experimental conditions were as follows: One-half of the subjects were given a placebo, the other half 5 mg of dexedrine. Each of the two groups was also divided, so that for each drug group one-half performed the four hours of work while breathing a nitrogen-oxygen mixture containing 21 per cent oxygen, a simulation of ambient sea-level air; and the other half breathed a nitrogen-oxygen mixture containing 12 per cent oxygen, a degree of oxygen impoverishment equal to that of an altitude of about 13,000 feet.

The performance of the placebo groups gave clear-cut evidence of the deleterious effects of the low-grade hypoxia induced by the 12 per cent nitrogen-oxygen mixture. Deterioration of proficiency, normally occurring from prolonged work alone, was accelerated to such an extent that the subjects were performing at a near ineffectual level during the final hour of work. Yet, surprisingly enough, these deleterious effects were seen to be completely counteracted by the effects of dexedrine. There was simply no demonstrable difference between the performance of the dexedrine group working under a condition of simulated ambient sea level air and the performance of the dexedrine group working under the condition of oxygen impoverishment.

Returning now to the basic question that was raised, it is recognized of course, that these results do not provide direct information relevant to the magnitude of the physiological costs incurred by the energizing property of dexedrine. What was found is that the effectiveness with which this preparation normally mitigates proficiency decrement was independent of the oxygen factor. This, together with the reported findings of electro-physiological studies, suggest that the characteristic ability of dexedrine to sustain proficiency is almost wholly derived from its enhancement of subcortical arousal activity and the consequent maintenance of alertness.

Having explored the sustentative property of this analeptic, we then considered the equally important question which concerns the restoration of proficiency that has already undergone deterioration as a consequence of prolonged work. An investigation, therefore, was designed to

assess the restorative property of dexedrine and the dependence of restoration upon dosage. The task performed by the subjects was the same as that used in the previous investigations and the customary period of practice was also given prior to the administration of experimental treatments. These were as follows: Delay in the administration of dexedrine consisted of 0, 1, and 2 hours, i.e., one-third of the subjects received their preparation immediately before beginning work, one-third received theirs after one hour of work, and the remaining third after having worked two hours. Further, each one of these three "delay" groups were equally divided into groups receiving 1.25, 2.5, 5.0, 7.5, or 12.5 mg doses.

Analysis of the obtained data clearly revealed the ability of this analeptic to exert a restorative effect upon fatigue-induced deterioration of proficiency. Equally clear were the specific characteristics of this effect. Extent of restoration, as expected, was found to be dependent upon the dosage. The function was not linear, however, but quadratic which is in keeping with the known facts of overdosage. Further, for any one of these different doses, extent of restoration was independent of the length of delay of medication, i.e., a given dosage boosted proficiency by the same amount regardless of the level of decrement prevailing at the time the gain was induced. This finding is interesting both from a theoretical and practical point of view.

On the basis of results, thus far presented, dexedrine could be considered to represent an effective means for counteracting the effects of fatigue upon proficiency. Unfortunately, such a conclusion would suffer from a severely restrictive consideration, namely, the duration of observation. That is, we had never required subjects to work beyond eight consecutive hours and so we found ourselves faced with questions which could not be ignored.

1. Just how long will dexedrine sustain proficiency?
2. What is the danger of "let-down," i.e., with the dissipation of analeptic effects, what happens to proficiency?
3. Will dexedrine have any restorative effect upon proficiency that has been degraded by an extremely prolonged period of work?

In the investigation designed to answer these questions, volunteer subjects were given practice at the same task used in the previous studies, randomly assigned to the experimental treatments, and immediately following this, were returned to the task for 30 consecutive hours of work. At regular meal times, 1200, 1800, and so forth, and at midnight, a 20-minute break was given. During this period, the subjects left the cockpit, ate a lunch, and voided. Beginning at 0700 of the second day and at the end of every hour thereafter, a five-minute "stand-up and stretch" break was given. With the exception of these breaks, the subjects remained in the cockpits throughout the entire working period and they were not permitted to doze or sleep. Assignment to the aforementioned experimental treatments created three different groups.

Group I received a placebo at 0900 Day 1 and a placebo at 0900 Day 2.
Group II received a placebo at 0900 Day 1 and 5 mg of dexedrine at 0900 Day 2.
Group III received 5 mg of dexedrine at 0900 Day 1 and 5 mg of dexedrine at 0900 Day 2.

The results were interesting. Consider first the performance of the control group, Group I. These subjects maintained their initial levels of proficiency for approximately 16 consecutive hours of work. Considering the exacting nature of the task, this is a surprising accomplishment. Shortly after midnight, however, proficiency began to decline and continued to do so at a fairly progressive rate until 0600 of Day 2 at which time the breakfast break

was given. Following breakfast, proficiency began to increase. This increase continued in a somewhat erratic manner up to about noon. From this point to the termination of the 30-hour period, proficiency fluctuated about a level which fell approximately midway between the highest levels that were attained during the preceding day and the lowest levels that occurred during the early morning hours of the second day.

In the case of Group II, we expected and did find essentially the same picture for the first 24 hours of work. At 0900 of Day 2, this group received 5 mg of dexedrine. The effects that were revealed following the one hour that is usually required for full absorption were striking. The proficiency of this group returned to the high initial levels of the preceding day and, in so doing, gave a clear-cut answer to the question concerning the restorative property of this preparation.

Finally, we come to Group III, the group receiving dexedrine at 0900 Day 1 and 0900 Day 2. Here we observed for the first 24 hours of work essentially the same form of proficiency curve as in the case of Groups I and II indicating that the typical sustentative effects upon proficiency were not demonstrated. This should not be too surprising. Consider the extreme length of time that Groups I and II were able to maintain their high initial levels of proficiency. It is most probable that during the period of work when the sustentative effects of this preparation are normally revealed, all subjects of this investigation were simply performing at a level set by the top limits of their ability. A ceiling limit, as it were, which could not be exceeded by the use of dexedrine and which must be attributed to the surprising effectiveness of the technics used for the production and maintenance of motivation. At any rate, the question concerning the possibility of a "let-down" occurring as a result of the dissipation of analeptic effect can be answered. At no time did the performance of this group give evidence of such an effect. Finally, the effects of the second administration of dexedrine at 0900 Day 2 clearly substantiate what was noted in the case of Group II, i.e., a nearly complete restoration of proficiency.

The results presented up to now have dealt directly with the sustentative and restorative effects of dexedrine upon proficiency during prolonged work. What about the possibility of other effects such as irrationality of judgment and lowered frustration thresholds which have been popularly ascribed to dexedrine and other analeptic preparations? In view of the practical consequences of effects such as these, we felt compelled to subject these possible effects to an objective and systematic assessment.

The first investigation dealt with judgment and the specific question to be answered was as follows: What are the effects of 5 mg of dexedrine upon the judicious caution characterizing one's estimation of his probable performance at a task? Since the procedure and design of this study are somewhat involved, I shall depart from the usual format and proceed with a less formal presentation. The basic procedure required subjects who, an hour previously, had received either a placebo or dexedrine, to operate a pursuit-type task for 15 one-minute trials.

Following each one-minute performance trial, the subjects were told the proficiency score that they had attained and then asked to estimate the proficiency score they expected to attain in the next trial. By computing the discrepancy between the estimated and actually attained proficiencies, an error of estimation is obtained which is quantitatively expressed and which indicates the direction of error. In performing this task, however, the subjects were not permitted the use of direct vision. Instead, they were required to depend

entirely upon the use of mirror vision. The principal effect of this requirement was to generate habit interference; i.e., the normal or customary spatial relationships were no longer appropriate so the subject had to learn to perform in accordance with new or different spatial relationships. This is difficult because, as we know, old habits or skills seem to interfere with the formation of new habits or skills. The effect of such interference in the experimental situation was to create in the subject's mind a considerable degree of uncertainty as to his probable performance at the task. In short, as the subject proceeds with the task, he is provided with a meaningful and valid basis for estimating his probable performance, namely, his actual past performance; but, due to the operation of habit interference, he is subject, nonetheless, to substantial doubt as to how much his next proficiency score will differ from his last and whether it will be better or worse.

When these successive errors of estimation are plotted for the placebo or drug-free groups, a curve is obtained that would be entirely predictable on purely rational grounds. Initially, subjects normally underestimate their probable performance to very considerable degree. As experience is gained or as the trials continue, the extent of underestimation is rapidly reduced until, finally, probable performance is estimated with a high degree of accuracy.

On the basis of some of the literature, it had been expected that the dexedrine group might exhibit quite different results—much less of a tendency to underestimate or perhaps even a tendency to overestimate. As it turned out, the data obtained from the dexedrine group and from the control groups did not differ significantly at any point in time. It is necessary to mention also that two psychological variables were included in the factorial design of this study. Briefly, one variable permitted the difficulty of estimating probable performance to be experimentally manipulated. The other allowed for the experimental inducement of feelings either of success or failure. The inclusion of these variables made provision for the possibility that impairment in judgment attributable to dexedrine might not occur until the psychological stresses imposed upon the subjects reached a sufficiently high level. Despite the single and the joint imposition of these presumed psychological stresses, significant effects of dexedrine still remain undetectable.

The second investigation, intended to explore the effects of dexedrine upon frustration threshold, was specifically designed to assess the effects of this preparation upon the behavior of two-member teams working under certain conditions. The first condition was that of interdependence of effort which was provided by the following work situation: The basic requirement was to keep a follower in contact with an eccentrically moving target. This was accomplished through the appropriate manipulation of two control cranks, each of which controlled follower movement along one of the two spatial axes. The team members were each assigned to one of these controls. In addition, only one of the two members was provided with the visual view of the target and follower. Therefore, this particular member not only had to control follower movement along the axis under his control, but also had to provide his "blind" teammate with a continuous flow of timely information that he had to have in order to effectively move the follower along the axis under his control. Considering the amount and intensity of information which was exchanged between the team members, and which was not at all relevant to the operation of the task, it seems that we also achieved a considerable degree of emotional interdependence. The other condition involved the experimental manipulation of the harmony between

the team members. Throughout the task, the teams were given misinformation concerning their progress or proficiency. In the case of one group of teams, the misinformation was of such a nature as to induce frustration. In the case of the other group, the nature of the misinformation was to promote feelings of satisfaction.

The effects of dexedrine, which was administered one hour prior to performing the task, were appraised by the statistical analysis of two indexes, the proficiency with which the teams were able to keep the follower on target and the quantitative measurement of the attitudes toward the task and toward one another's adequacy as a teammate. These were assessed at the conclusion of the task. It was found that neither of these indexes evidenced any undesirable effects that could be attributed to dexedrine.

On the basis of what has been presented, it may be concluded that a standard dose of dexedrine intelligently administered to a normal, healthy individual engaged at a task requiring vigilance and judgment will act to mitigate the degradation of proficiency resulting from prolonged work and with little likelihood of inducing extremes in emotional and attitudinal behavior.

At the time that our studies of the analeptic preparations were in progress, we were also investigating the side-effects of those anticholinergic and antihistaminic drugs which are currently used for the prevention of motion sickness. The objective was essentially the same, i.e., determination of the possible adverse effects of these preparations upon the proficiencies of aircrew personnel. Since the work in this area was even more extensive than in the case of the analeptic preparations, I shall sketch briefly the rationale of our approach and present only the most general findings.

As the first step, several of the most commonly used motion sickness preventives were administered to a large population of Air Force personnel who were then subjected to a variety of standardized tests administered under carefully controlled conditions. These tests were selected so as to permit the testing of a spectrum of abilities and skills relevant to the performance of the different aircrew duties. The principal finding was entirely in accord with literature dealing with other depressant agents, in that the most pronounced adverse effects were evidenced in tests involving the higher intellectual processes. The least pronounced effects were upon the processes that were less demanding intellectually such as required by the perceptual motor type of task. This finding was later confirmed by the results of subsequent investigations designed to assess the depressant effects of these and additional motion sickness preventives upon the proficiencies of student navigators who were performing in-flight navigation.

At this point, it is necessary to raise a fairly important consideration. The finding that tasks requiring perceptual-motor abilities have been shown to be most resistent to the depressant properties of motion sickness preventives must be viewed in conjunction with the duration of such tasks. When individuals are required to perform a perceptual-motor task for a prolonged period of time, then certain of these motion sickness preventives have been found to accelerate the degradation of proficiency normally resulting from the effects of fatigue. In fact, the performance of subjects who have received a standard clinical dosage of benedryl-hyoscine and who have then performed such a task for several hours will exhibit a nearly ineffectual level of proficiency.

The obvious next step to be taken involved the testing of various means for nullifying these deleterious effects upon proficiency. To date, we have investigated pharmacological, human engineer-

ing, and psychological counteractive technics. All have proved to be moderately successful. For example, the addition of 5 mg of d-amphetamine to a preparation of benadryl-hyoscine was found to attenuate to a practical degree the effects which bendryl-hyoscine normally exerts upon proficiency during prolonged perceptual-motor work. Equally effective were supplementary feedback systems which had the principal effect of both simplifying the requirements for scanning the instrument panel and alerting the operator. Finally, several studies were devoted to the higher-order intellectual processes involved in tasks requiring the learning and reproduction of verbal material. Here, the purpose was to systematically explore severity of adverse drug effect as a function of the psychological factors, drive and habit strength, which are basic to the evocation or performance of learned behavior. From the results, it could be concluded that, barring frank idiosyncracy, the severity of such effects can be successfully managed by the use of technics or policies which have the effect of increasing and maintaining worker motivation and by appropriate job training programs.

This, then, completes the summary of our studies of the effects of analeptic and depressant drugs upon proficiency. The discrepancies between the obtained findings and popular opinion would seem to underscore my opening remarks concerning fact and fantasy and the final necessity of extensive systematic investigation.

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Michigan Radiation Regulations

Michigan has added to its state administrative code regulations adopted by the state health commissioner and approved by the Council of Health to protect the public and special workers against overexposure to ionizing radiation. All sources of ionizing radiation including x-ray machines must be registered with the state health department on official registration forms. Fluoroscopic shoe-fitting machines are prohibited for use on persons under 18 years of age. The regulations also authorize a nine-member committee appointed by the health commissioner to advise him on radiation protection.

HABITUATING DRUGS

III. TRANQUILIZING DRUGS AND STRESS TOLERANCE

Captain Terence F. McGuire, USAF (MC), and Captain Frank J. Leary, USAF (MC)

THE USE of tranquilizing drugs in this country has reached tremendous proportions. In June, 1957, the director of the National Institute of Mental Health [1] stated in a national news magazine that 30 per cent of prescriptions either contained a tranquilizing agent as a component or were written exclusively for such a drug. Bell estimates that sales for 1957 were almost two hundred million dollars (see page 585 of this issue). It has been estimated that at least one in ten American adults has received tranquilizers at one time or another.

There is a great element of danger in such a situation because we are dealing with a series of new and little studied drugs, which nevertheless have been widely embraced because of their ataractic effect. In this country, where more than 200,000 people are annually affected by gross mental disease, where untold millions suffer anxiety states of varying degree, where half of our hospital beds are occupied by the mentally ill, and where the annual bill exceeds 1.2 billion dollars for the care of those with gross mental illness, both the medical and popular press have seized upon these drugs as, at least, a partial answer to a vast problem. It is certainly a tempting prospect to be able to allay mental disquiet by the simple expedient of taking a small, inoffensive pill. But, unfortunately, relatively little is actually known about the metabolism of these drugs, their detoxification, or the absolute mode of their physiologic action; indeed, in the case of some of these drugs, the evidence for their tranquilizing action rests almost entirely upon clinical observation with a definite paucity of experimental data. It is, perhaps, an unfortunate reflection upon our contemporary civilization that so many in our population obviously feel the need for these drugs.

There are currently thirty-odd tranquilizing agents offered commercially, and these fall into four basic chemical groups; (1) the rauwolfia alkaloids, such as reserpine, (2) the diphenylmethanes, such as hydroxyzine; (3) the phenothiazines, such as promazine; and (4) those derived from substituted propanediols, such as meprobamate. Berger [2] has classified them into two main divisions "physiologically"; (1) the autonomic suppressants and (2) the central relaxants. All the tranquilizers, with the exception of the substituted propanediols, are placed in the former group by that author. The autonomic suppressants were so named because of their apparent antagonism to certain of the substances which are involved in regulatory functions of the autonomic nervous system. Certainly in the case of chlorpromazine and promazine hydrochloride, which are some of the better studied tranquilizers, there are recognized effects of thalamic and hypothalamic depression, with the obvious consequence of altered autonomic activity. However, the classification of the meprobamates (Miltown, Equanil), the most commonly used tranquilizers in this country, into simple central relaxants which "do not affect the autonomic functions in any way" appears open to question, especially in light of recent animal work with indwelling electrodes which has shown a definite hypothalamic effect.[3] For better or worse, most of the

pharmacologic experiments with tranquilizers, especially with meprobamate, have been done by investigators tied either emotionally or financially to the drug houses.

We have been lulled into a false sense of security by the assumption that large doses of meprobamate can be administered with practically no side-effects. In the realm of acute and chronic toxicities, the margin of safety appears to be four or five times that of the barbiturates. Reports of attempted suicides have involved deliberate ingestion of up to 38 gm (95 tablets of 400 mg each) of the drug.[4-8] Several additional cases have come to the attention of the authors, one involving 32 gm and the other 37 gm of this substance. All, save one, of these individuals, survived, usually having recovered entirely in less than 48 hours following judicious use of supportive therapy for signs of severe central depression. It is of interest to note that the one death, following ingestion of 92 tablets, was assumed to be due to excessive intravenous fluid therapy. Because of the low toxicity over a wide range of dosage, coupled with the relative absence of obvious side-effects, use of meprobamate has been exceedingly free.

Some of this false sense of security has been shaken recently by the revelation that physical dependence on meprobamate can develop and that abrupt withdrawal can cause anxiety and tension in a high percentage of cases, or, if larger doses are involved, can result in grand mal convulsions.[9-14] Work being done at the Public Health Service Hospital in Lexington, Ky., where drug addiction is treated, has confirmed the above. It is believed that such patients should be treated in a similar manner to those addicted to barbiturates (see Fraser, p. 561, this issue).

The greatest use of tranquilizers, of course, has been for ataractic purposes. Its wide use in "psychosomatic" disorders involving hyperactivity of the endocrine and autonomic nervous systems is interesting in light of the denial by Berger of autonomic effect and the denial of cortical effect. However, the primary area of effect is conceded to be subcortical.[15, 16] The functions of cortical structures in complex behavior are normally considered to be control of sensory discrimination, government of specific voluntary motor activities, and control of complex intellectual processes. But the regulation of emotional reactivity is believed to be, basically, a function of subcortical structures, namely, the hypothalamus and related diencephalic components. Since control of a wide variety of homeostatic mechanisms, both endocrine and nervous, are affected by hypothalamic activity, it would appear legitimate to question strongly the denial of effect on homeostatic capability even within the realm of normal dosage.

The question of the effect of tranquilizers on homeostatic mechanisms becomes quite serious in regard to the flying man. Misgivings in this area resulted in a research program which was begun in 1956 and completed early in 1957. It had become apparent that a number of pilots were receiving these drugs, usually from one of three sources: (1) a civilian physician, (2) the pilot's own wife, who was taking the drug herself, or (3) a well meaning flight surgeon attempting to allay anxiety. Since all testing on the reported absence of effect on homeostatic mechanisms, especially of meprobamate, has been done in the past on the quiescent nonstressed man, it was decided that actual stressing of human subjects on these drugs could prove profitable.

Method

In an attempt to explore at least one parameter of the question of the safety of these drugs for the flying man, the authors set up a panel of ten healthy

young males, aged 18 to 27. Following complete physical examination, these men were exposed over a period of several weeks to a series of five stresses, some very mild and others quite demanding. They were then placed on the currently recommended therapeutic doses of either a placebo, promazine hydrochloride (Sparine—50 mg, QID), or meprobamate (Miltown or Equanil—400 mg, QID); some subjects eventually received all three. Three to five days on the drug were allowed before testing began and the drug was continued through the test cycle. In the case of subjects receiving both drugs, a week's time, or more, was allowed to elapse between drugs. No more than two tests were performed on a given day, and these two were performed on any subject at widely separated times, so that his stress response to one test might not be prejudiced by the prior test. The subjects were not told what they were receiving or what the investigation was attempting to discern.

The response to each of the tests used was graded on a one to five basis. A score value of one, for instance, was considered to indicate a very poor response, while a score of five indicated an excellent response for that particular stress. The intervening numbers from five down to one indicated a declining scale of compensatory efficiency.

The tests used were the following:

(1) Valsalva Overshoot—The classical Valsalva experiment was adapted for use by having the subject forcefully expire into a large tubing connected to a 500 ml flask, which was in turn attached to a mercury manometer. The subject maintained 50 mm Hg pressure for 15 seconds; a No. 23 needle inserted into the blowing hose insured against closing the glottis as a mode of maintaining elevated pressure and forced the pressure column to extend down into the lungs. When the intrapulmonic pressure was released, the systolic blood pressure "overshoot" was determined by the method which utilizes a preinflated blood pressure cuff and a stethoscope [17] (Bondurant, S., Aero Med. Lab., WADC, Wright-Patterson AFB, Ohio; personal communication) taking the reading at which only 1–2 blood pressure sounds were heard as the maximal systolic overshoot value. An average of from five to eight readings were taken and the mean derived. Scores were determined by the method of Wilkins.[18]

Score Value:

1—Overshoot less than 5 per cent above control level
2—Overshoot from 5–15 per cent above control level
3—Overshoot from 15–24 per cent above control level
4—Overshoot from 24–34 per cent above control level
5—Overshoot greater than 35 per cent above control level.

(2) Continuous Positive Pressure Breathing, 30 mm Hg Pressure, 100 per cent Oxygen, 25,000 Feet (Altitude Chamber) — Using a standard USAF full-head helmet, 30 mm Hg continuous positive pressure, 100 per cent oxygen was delivered to the head and respiratory tract at an altitude of 25,000 feet (282 mm Hg atmospheric pressure instead of the 760 mm Hg of sea level). Earlier work by one of the authors had shown that, though it is significantly easier to breathe positive pressures at altitude, the subject is less well protected against them; thus, a compensatory pattern is more easily evoked while keeping the subject more comfortable.

(This finding, unfortunately, obviates any time-altitude transference of previous pressure breathing work done at ground level.) This continuous pressure breathing was performed for 15 minutes, during which blood pressure, pulse, and EKG data were obtained. Scoring was done as follows:

1—Syncope in less than eight minutes from onset
2—Syncope in from nine to 15 minutes

3—No syncope, systolic blood pressure fell more than 10 mm Hg below baseline
4—No syncope, systolic blood pressure maintained within 10 mm Hg of baseline.
5—No syncope, systolic blood pressure maintained at greater than 10 mm Hg above baseline.

(3) Tilt Table—Following a three-minute Harvard Step Test (an adaptation by the authors to this test to induce greater vascular dilatation), the subject was secured horizontally to the tilt table and then tilted immediately to 65°, remaining there for 20 minutes unless syncope intervened. Pulse and blood pressure were recorded every two minutes. Scores were determined by the following method:

Score Value:
1—Syncope within eight minutes from onset of tilt, or within 15 minutes if pulse rate above 155
2—Syncope in from nine to 20 minutes with pulse rate below 155, or syncope within 15–20 minutes with pulse rate above 155
3—No syncope, but systolic blood pressure below 100 mm Hg for at least two determinations
4—No syncope, systolic blood pressure always above 100 mm Hg but less than 115 mm for at least two determinations
5—No syncope, systolic blood pressure never below 115 mm Hg.

(4) Harvard Step Test—This commonly used exercise tolerance test consists of a five-minute period of stepping up onto and down from a platform 20 inches high at the rate of 30 steps per minute. Pulse rates are taken from 1–1.5 minutes, 2–2.5 minutes, and 4–4.5 minutes following exercise. The following formula yields an index of fitness:

$$\text{Index} = \frac{\text{Time of Stepping in seconds} \times 100}{2\ (\text{sum of the three 30 second counts})}$$

Scores are evaluated as follows:
1—55 and below
2—56–68
3—69–79
4—80–89
5—90 and above.

(5) Classified Test—This fifth test was physically by far the most stringent of the group. It was a combination of stresses to which the pilot of a high performance aircraft might be exposed. In addition, the time length of exposure was a multiple of any of the preceding tests. Because of its nature, the test itself is classified in its technical aspects. Scoring was done on the usual one to five basis, one being very poor and five being excellent. Subjects were graded in this test on a scale that rewarded primarily for time duration of endurance and penalized secondarily for inefficient patterns of compensation. Pattern assessment was based on records obtained during several hundred human exposures to this test, all of which had been monitored by the authors.

The method used might be considered by some to be open to criticism on several points. It would have been desirable to repeat each subject on each test from three or five times in light of human variability, but the time investment in light of other requirements would have been prohibitive. The approach was aimed at rapidly obtaining a valid answer for the Air Force in the shortest possible time, but statistical validity was retained because of the unidirectional nature of the results and the size of the group of subjects. The lack of a "double-blind" study, where neither subject nor investigator knows what medication is being used (here, only the subject did not know what, if any actual medication he was receiving) is unimportant here, since evaluation of results was done on a predetermined aritimetic basis. One additional possible complaint, that we were using the drug on people "not in need," people who were not overly anxious (though anxiety of varying degrees was commonly observed relative to the more stringent tests), can be dealt with by explaining that very early in the program the opportunity presented itself to test a series of aircrewmen who had great anxiety about

some stressful altitude chamber work they had to do. They were carefully run several times through their stressful situation, both with and without tranquilizers. The tranquilizers relieved most of their anxiety and made them subjectively quite comfortable, but reduced their stress tolerance roughly the same degree as in the "nonanxious" subjects; there was essentially no difference between the altered patterns of the two groups.

Results

Figure 1 gives the results of the testing. The five tests are arranged in ascending order of difficulty. The effects of the promazine hydrochloride on reducing stress tolerance are seen much earlier than those of the less disruptive meprobamate. But as the stress becomes more pronounced, the limitation imposed by the meprobamate becomes marked, producing a serious shortcoming in stress tolerance. The figure is not completely filled out; economy cuts and problems of a more pressing nature forced abandonment of the program before completion.

A series of additional tests, using higher doses of various tranquilizers, universally decimated the subjects' abilities to compensate for stress of any magnitude. Additional testing on highly anxious altitude chamber subjects has been referred to earlier; their stress tolerance was greatly reduced, though psychologically they were much less disturbed.

Discussion

The practice of giving tranquilizing drugs to flying personnel is to be decried; the authors do not mean to condemn the drug as such, only to condemn the combination of the drug and the flying situation. The dangers are several. The reduction in the capacity to compensate for stress is quite real and has been shown by the authors to extend even to mild-to-moderate reductions in available oxygen. This should be anticipated from the "autonomic suppressant" group, but is shown also to include the

	VALSALVA				30 MM				TILT				H. S. T.				CLASS.			
	N	P	M	S	N	P	M	S	N	P	M	S	N	P	M	S	N	P	M	S
A	3	3	3	2	3	4	3	3	3	4	3	2	3-4°		2	2	5	5	3	2
B	2-3°		1		4		4		3	3	3		3-4°		2		2		1	
C	2	2		2	4			2-3	4-5°			2	3	3		2	2			1
D	5			3	2			1	2			3	3			2	2			1
E	4°		3		4		2		3		3		3		2		1			
F	4		2	2	3		3	2	4		2	1	5		4	4	3		1	1
G	5	5	5	4	3	3	3	1	5	5	2	3	3	3	3	2	5	5	3	1
H	4	5	3	3	3	4	3	1	2	3	3	1	4	4	3	2	5	5	3	2
I									2		2		3		2		1		1	
J	5			4	2			1	1			1	3			2	1			0

Figure 1

so-called "central relaxant" group. The latter group, containing the meprobamates, represents the real danger because of its little recognized side-effects.

The primary medical function of the tranquilizers, as used today, is to relieve tension and anxiety. As those working with stress tolerance know, there is a very definite physiologic benefit to be gained by some anxiety and "awareness" in a stressful situation. Above and beyond this, in flying high performance aircraft, caution and good judgment should be exercised in potentially dangerous situations and this is often related to full risk appreciation.

Psychological testing carried out by Dr. Cecile Lazar of the Biophysics Branch of the Aero Medical Laboratory on a series of subjects that the authors were having studied for another purpose other than the tests discussed here revealed highly significant alterations of judgment and orientation to reality while on tranquilizers; this was a "double-blind" study again using promazine hydrochloride, meprobamate, and placebos, where neither the subject nor the evaluator knew whether each individual subject was on tranquilizers or not. It is the authors' understanding that similar studies are under way, or perhaps are completed, at the School of Aviation Medicine, USAF, Randolph Air Force Base, Texas.

It is interesting, too, in the light of the stress studies done at this installation, that there began to appear recently in anesthesiology journals, a few scattered articles indicating an increased incidence of surgical hypotension when tranquilizers are used as preoperative medication, that the patients appeared "more sensitive." The authors, suspecting such a possibility, had made some inquiries at an earlier date of acquaintances involved in the field of anesthesiology and had received positive replies. From another quarter, the authors received word that a large number of the surgeons in one metropolitan area preferred that tranquilizers not be used preoperatively; though they had no firm ground to stand upon, they reportedly felt that their patients during surgery "just didn't seem to do quite as well."

Every potent pharmacologic agent has the potential of producing some complications, but these do not form a deterrent to their proper use when indicated. As with all things, the known risk must be weighed against the expected therapeutic benefits. But one would be hard pressed to justify the situation that would require tranquilization and yet allow the airman to continue on flying status. Tranquilizers do not apparently alter the underlying psychological or biochemical difficulty, offering only symptomatic relief. If the situation demands tranquilizers, then the airman should, at least temporarily, come off flying status while on the drug.

Summary

Stress tolerance studies were carried out on a group of ten healthy male subjects, aged 18 to 27, both in their normal state and while on therapeutic doses of the tranquilizers promazine hydrochloride (Sparine) or meprobamate (Miltown, Equanil). Stress tolerance was reduced while on tranquilizers. The limitation was more severe with the promazine hydrochloride, than with the meprobamate; however, as the degree of stress increased, the limitation of response became severe with both groups of tranquilizing agents. Experiments with very high doses yielded even more severe limitations. The stress limitation apparently exists whether the subject is overtly anxious about the proposed experiment (when not on medication) or not. Psychological factors are also discussed. It is believed that if the situation demands tranquilizers, then the airman should, at least temporarily, come off flying status while on the drug.

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1958 Directory of Member Agencies, National Health Council

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IV. THE PROBLEM WITHIN INDUSTRY

R. G. Bell, M.D.

I HAVE BEEN asked to discuss problems in industry resulting from the use of habituating drugs. Unfortunately, reliable information concerning the prevalence or importance of these problems is not available. This discussion deals for the most part with the clinical possibilities in this field of medicine and with suggestions for improving our working knowledge.

Habituating Drugs

What properties does a chemical or drug require in order to be considered an "habituating drug"? The drug must be able to produce some type of welcome effect. This welcome effect is usually one of relieving such unpleasant states as pain, tension, frustration and depression, or producing the exaggerated sense of well-being that we call euphoria. Our clinical experience of the last eleven years has convinced me that any drug that could be considered a nervous system depressant or a nervous system stimulant can be classified as an habituating drug. Whereas in 1800 there were only a few substances available to man that could qualify as habituating drugs, today there are hundreds.

Addiction

What is an addition? We have come to believe that addiction can be defined as: "A way of life that involves repeated or continuous dependence on harmful quantities of any chemical capable of producing welcome effects." Since harmful or toxic quantities of a particular chemical are involved, sooner or later disease results from choronic toxic exposure to the chemical on which the person depends. Thus, there are at least two distinct but interrelated clinical problems encountered in the addictive process: the "way of life" itself, in which the individual depends on chemicals rather than on latent resources within himself and other people, and the physiological changes resulting from the acute and chronic toxic effects of the chemical or chemicals on which he depends.

Ethyl Alcohol

Today many industries are at least willing to admit that some of their employees drink too much. A few will not even accept this possibility. Others have gone to great trouble to establish programs of early recognition, treatment, and rehabilitation of alcoholic employees. Most of the new clinical interest in alcohol addiction has come about in the past ten years and has been heralded by a great deal of publicity in both lay and scientific journals. One might almost think the problem was licked! Where do we stand today as a result of these new efforts to recognize and treat the alcoholic both within and outside of industry? Are results in early recognition, treatment, rehabilitation, prevention, and improved understanding generally in keeping with the new publicity? They are not, although we must admit that the new interest is encouraging and a necessary precursor to more effective clinical developments.

I believe that in the United States and Canada there are more people dying each year as a direct or indirect result of alcoholic disease than are being effectively treated by all agencies combined,

including Alcoholics Anonymous which is still doing the most effective work in rehabilitation. Despite all these efforts, there are reliable indications that alcoholic disease is on the increase and, in some areas, at a truly alarming rate.

In Ontario, where the incidence of alcoholism is believed to have doubled since 1946,[1] there are more new cases each year than are being helped by the combined available resources designed to deal with alcoholism. It is important to realize that in Ontario this increase has come about during the same period in which new, serious efforts were made to come to grips with this very problem! Why is it necessary to call attention to this situation in introducing the discussion of "Problems in Industry Resulting from the Use of Habituating Drugs"? Because in United States and Canada ethyl alcohol is still the "habituating drug" that causes the most damage in industry and elsewhere, and we still do not know how to cope effectively with the problems in which the excessive use of alcohol is involved.

There are still many indications that alcoholism is more prevalent in the United States than in Canada but, in Ontario at least, we appear to be closing this gap quite rapidly. In the industries studied in a sample area in Ontario by the Alcoholism Research Foundation, 6 per cent of the employees were considered to have a recognizable problem with alcohol.[2, 3] Since Monday morning absenteeism was one of the criteria used in the study, from a clinical standpoint, this could be interpreted as indicating that 6 per cent of employees had advanced far enough into alcoholic disease to be suffering alcohol withdrawal reactions—the condition they soon learn to treat themselves by a "morning drink." The 6 per cent considered to have alcoholic disease averaged 18.5 days absenteeism per employee per year. If this figure is even remotely close to the truth of the situation in Canadian and American industry arising from the misuse of the most commonly used "habituating drug"—ethyl alcohol—then the economic cost to industry alone is so great as to be practically incalculable. Even several years ago it was estimated to be about one billion dollars annually in the United States.

In industry, much addictive drinking can remain hidden until late stage manifestations of addiction or disease bring it to light. We wait for the phenomenon of recurrent "drunkenness" or absenteeism to signal the presence of problems which have involved alcohol intake in toxic quantities without drunkenness or absenteeism for years.

Psychiatrists, internists, sociologists, and others have conflicting opinions as to the main causes of the excessive use of alcohol. Even from a clinical standpoint there is still no agreement as to when the use of alcohol could be considered excessive. There is still no agreement on terminology, on clinical procedures, on evaluation of treatment results, or even upon areas of research. The implications of this situation, from the standpoint of social health and stability, are nothing short of frightening, particularly at this time.

Other Nervous System Depressants

If alcohol can be used for years in harmful quantities without being detected in industry, how much more can this apply to many of the other "habituating drugs" that do not even give an easily recognizable odor to the breath. What do we know about the problems in industry arising from the use of other nervous system depressants? Unfortunately, still less than we do of the problems arising from the use of alcohol.

(1) Barbiturates and the Older Depressants—First, I shall discuss the older depressants, such as the barbiturates, bromides, paraldehyde, and chloral hydrate. These drugs must cer-

tainly be considered habituating drugs. At various times I have had to treat patients addicted to them. The physician who has not yet supervised the treatment of the withdrawal reaction to barbiturates should try it at least once, just for the experience. It would do more to bring about caution in the administration of barbiturates to patients than any number of papers on the subject. Most of the barbiturate addicts that I have known were first alcohol addicts who had shifted to barbiturates either on their own or with medical assistance.

There are some indications that the newer depressants are replacing the older ones in United States.[4] If it should develop that in addition to their added therapeutic properties the tranquilizers are less toxic and less likely to become involved in addictions, the trend is in the right direction. However, all information received to date indicates that in Canada at least this is not the case. The widespread use of tranquilizers represents an additional depressant effect on the population as the sales of the older depressants are relatively unaffected. We also know that before the advent of the tranquilizers the extent to which the older depressants were used was alarming to the few who took the trouble to investigate it and consider the implications. The self-administration of barbiturates by people in industry and elsewhere was encountered too frequently to be ignored.

(2) Tranquilizers—Within the past few years, there has been introduced a new group of nervous system depressants known as the tranquilizers. They have revolutionized the treatment of many psychiatric diseases and, as such, constitute a very significant advance in therapeutics. Are there also dangers associated with their use? We have already had to treat a few patients addicted to tranquilizers. All who have come to our attention to date had formerly been addicted to alcohol. In Canada practically all tranquilizers are available without prescription, in contrast to the situation in the United States, which may account for the fact that to date their sale in Canada indicates an additional use of nervous system depressants.

The wholesale price of all tranquilizers sold in the United States alone in 1957 was approximately $195,000,000.[5] It was not possible to get any comparable figure for Canada.

The alarming feature in the appearance of new depressants is the rate at which they are gobbled up by the public. Apparently alcohol and the older depressants cannot fulfill the demands of the "national" neurosis in our two countries. Of one thing we can be very sure—when we add together the sales of nervous system depressants from the alcohol beverage industries and the drug houses—we realize that the nervous system depressant business is very big business indeed!

Have we any general program of instruction as to the early recognition of toxic effects from depressants to guide those who undertake self-administration? We have not; in fact, we do not yet provide adequate instruction on this matter for many physicians who prescribe them. It would be my guess that the use of tranquilizers by the working population is extensive and that not one in a thousand knows how to recognize toxic effects, realizes the significance of an increasing tolerance, or understands the problems within himself or his environment that make him feel the need for a nervous system depressant.

(3) Narcotics—The opiates and other narcotics will be mentioned briefly. They do not constitute a serious problem in industrial health. Narcotic addicts are not regularly employed. One reason is that the costs of maintaining a narcotic addiction could not be maintained very long by the proceeds of legitimate employment. This is not to imply

that narcotic addiction is not a serious problem for the country as a whole, but within the industrial setting alcohol should receive first place as a hazard to industrial health. Among the rest of the habituating drugs, the sedatives and tranquilizers are second in importance.

Nervous System Stimulants

The most important group of drugs in this class are the amphetamine compounds, such as benzedrine, dexedrine, and methedrine. Within the past two months two patients have come to my attention who maintained a daily intake of about 200 mg. Some amphetamine addicts take much more. One of these patients was a business executive who had begun using these stimulants about four years ago to keep going when fatigued. Eventually he had to have them because without them he experienced such a disabling state of mental underactivity, lack of drive, inability to concentrate, and feeling of depression that he was quite unable to carry on his work. The other patient was a physician who had shifted from narcotic to amphetamine addiction. How many more executives in Canada and in the United States are maintaining an intake of nervous system stimulants in toxic quantities in order to meet the demands of their job? How many attempt to balance the effect of toxic quantities of a stimulant with toxic quantities of a depressant, and vice versa? There is considerable evidence that amphetamines may also be used to excess by some transport drivers.

Discussion

What is the real meaning of such an extensive use of the chemicals that affect the nervous system? Why is there such a widespread tendency to change the way we feel in such a potentially dangerous fashion? Why do so many fail to find within themselves the resources to adjust to their life situation in a constructive yet comfortable manner? Have we somehow developed social situations that no one could be expected to adjust to satisfactorily? Does most of the fault lie in the underdeveloped resources of those who depend on chemicals in toxic quantities, or have these people been deficient in resources since conception? The last possibility I discount as not of any great significance. Most people who become addicted to alcohol, for example, impress me as having excellent latent resources which somehow have been ineffectively harnessed. I am also of the opinion that no one however strong or stable could adjust satisfactorily to some industrial situations, particularly at the managerial and executive level.

Many physicians have failed to take into account seriously enough the possibility of addiction when prescribing drugs. Special precautions should be taken routinely in prescribing any nervous system depressant to anyone who already has or has had an addiction to that or any other nervous system depressant.

We should be concerned not only with danger from outside our countries, but with the many indications that we are damaging ourselves quite successfully from within! If we had millions of people on this continent sick enough from a particular bacterial infection to be in danger of dying, we would be so alarmed that any number of millions of dollars would be readily allocated for the necessary research and clinical facilities to deal with it. We already have millions of people on this continent sick and dying as a result of repeated overdosage of a particular chemical—ethyl alcohol—and there is not enough interest to date even to think about planning research on the scale that could initiate programs of prevention.

In the meantime, it would be extremely helpful if every health examination of an adult in the United States

and Canada would include at least an attempt to assess the relationship between the patient or employee and the drugs which directly affect the nervous system. Little of value could be expected at the preplacement examination, but more might come to light in the periodic examination or when employees are referred for a multitude of reasons that elude ready diagnosis. This alone would be of inestimable value to the new subcommittees within the Industrial Medical Association which have been set up to begin an investigation of this problem.

Conclusion

The prevention of alcoholism will only come about when we have reexamined the very roots of our modern way of life —its values, its purpose, its weakness, and its strength. The correct answers to the alcoholism problem alone will automatically shed new light on every psychological and social problem with which we are presently faced.

If our governments can find billions in response to possible threats from without, could they not find at least millions for known threats from within? If alcohol alone can be responsible for a loss to American industry of one billion dollars annually, would it not be sensible for industry to finance research into this problem to the extent of at least 1 per cent of this figure, or ten million dollars annually? Would not many families who have had to live with alcohol or drug addicts be willing to contribute $10 yearly toward research into these problems?

Research on just such a scale could begin to be effective quickly, provided the central direction could be completely free of political interference.

Finally, I shall quote a statement by Dr. J. K. W. Ferguson, chairman of the Medical Advisory Board of the Alcoholism Research Foundation in Ontario: "Our basic problem is not habit-forming drugs, but habit-forming people."

Attempts to place the whole responsibility for the excessive use of nervous system depressants on the alcohol beverage industries and the drug manufacturers are only indicative of ignorance of the over-all problem and of our futile attempts to cope with it, thus far. When basic research into addiction is in keeping with the size of the problem, then, and then only, will we be in a position for positive action. Then, and then only, can we count on educational programs and clinical procedures which can institute prevention.

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A study is presented to show that the antigenic action of poliomyelitis vaccine can be heightened by altering the inactivation procedures in certain details. Furthermore, this is a revealing example of the highly complex and technical procedures inherent in the day-to-day practice of public health.

A STUDY OF THE SEROLOGIC RESPONSE TO ULTRAVIOLET-FORMALIN INACTIVATED POLIOMYELITIS VACCINE

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THE BASIC goal in any immunization program is the induction of the formation of a measurable level of circulating antibody in the blood of all vaccinated subjects. A great many factors contribute to a successful vaccine treatment and these have been discussed and outlined in detail by Salk.[1, 2] Furthermore, difficulties attendant on the development of large-scale processing of vaccines have been critically reviewed [3] and the standards [4] have been designed to insure the continued safety, purity, and potency of such biologic products.

Vaccine potency is one of the major factors to be considered. Early in 1956 a poliomyelitis vaccine became available in which the viruses were inactivated by means of a combination of ultraviolet irradiation (physical) and formalin (chemical) methods.[5] This vaccine was produced under standard stipulations and thoroughly tested.[4] The current recommendation for two doses of poliomyelitis vaccine, spaced two to four weeks apart as a primary immunization schedule, followed by a "so-called" booster dose four to seven months later, is generally accepted and has been used with a series of lots of this recently developed vaccine to test serologic response and reactions. The purpose of the study was (1) to provide as many complete immunizations as the limited supply of the new vaccine would allow; (2) to determine the antibody conversion rate in children who did not possess demonstrable antibody to Types I, II, and III poliomyelitis virus; and (3) to demonstrate the effectiveness of the third or "booster" inoculation. Comparison of the results obtained in this study with those of the NFIP field trial vaccines was made to a limited degree.*

Plan of the Study

Invitations were extended to 2,017 parents to enroll children between the ages of five and nine years. Parental permission was obtained for securing

* Part of the data presented in this study were used to evaluate the relative effectiveness of poliomyelitis vaccine inactivated by means of the combined formalin-ultraviolet irradiation procedure.

blood specimens from each child, if needed. Twelve hundred and twenty-seven replies were obtained and a clinic program was organized in such a manner that groups of children would be vaccinated and the requisite blood samples obtained by appointment. Children were drawn from the northwestern section of the city of Detroit, an area of middle and upper middle class residents, numbering about 423,600, with a population density of 9,500 per square mile. The program was operated in a well organized Health Center which serves this section of the city.

The first consecutive 782 children were bled and inoculated with their first dose of vaccine. Sera containing titers of less than one in four against Types I, II, and III poliomyelitis virus were considered to be triple-negative, and subsequent blood sampling was scheduled for this group. One hundred and sixty-eight triple-negatives were available and complete blood sampling was obtained in 139 of this group. Complete records of inoculations and serology were obtained from 100 triple-negative children after accounting for technical difficulties during testing, inadequacy of serum volume, and so forth; however, response data to the initial two doses of vaccine were available for 148 in this group.

Schedule of Vaccination

The schedule consisted of a series of three 1 ml doses, the first two separated by a period of two weeks, the third dose given 21 weeks after the first dose. It was not possible to allow seven months to elapse between the second and third doses because of the closing date of schools and the need to complete the bleeding schedule before that time. Blood specimens were taken immediately before the first dose, two weeks after the second dose, and two weeks following the third dose.

Methods

1. Vaccines—The vaccines used contained the Mahoney (Type I), MEF-1 (Type II), and Saukett (Type III) strains of poliomyelitis virus. These were inactivated by means of the recently developed combination procedure[5] utilizing formaldehyde, ultraviolet irradiation and incubation, and completely tested in conformance with the standards.[4] Five individual fluid vaccines were used and, in addition, an aliquot of one of these was purified and adsorbed upon aluminum phosphate for comparison.

2. Vaccinations—The inoculations were given intramuscularly by staff members of the Detroit Department of Health and the blood specimens were transported immediately to the Parke-Davis Research Laboratories where they were processed. The initial blood samples (782) were screened prior to the second vaccination in order to have available data with which to schedule the follow-up blood sampling. Sera from each group of bleedings were tested simultaneously by means of serum neutralization tests in monkey kidney cultures employing plastic plates.[6]

3. Serum Testing Methods — The method of testing children's sera for the presence of antibodies corresponded to the method outlined in the "Minimum Requirements" [4] for testing monkey sera. Prevaccination sera were tested at 1:4, 1:8, and 1:16 dilutions. A serum showing no neutralization at a 1:4 dilution against the challenge virus was considered to be negative for antibody against the specific type of challenge virus. All sera that showed protection at a dilution of 1:4 were considered to be positive for antibody against the specific challenge virus even when this apparent protection was no longer demonstrable at a dilution of the serum as low as 1:8. Only the children whose sera were negative for antibody against all three types

of the virus (i.e., triple-negative children only) were included in the group studied subsequently for their response to the vaccines.

Sera obtained from these children subsequent to the initial inoculation were tested for antibody in the same manner as were the prevaccination sera except that doubling dilutions of the sera from 1:4 to 1:2,048 were tested against each type of virus. A control serum, the titer of which did not vary more than twofold in any case, was run in each test. Geometric mean titers for each group were calculated from the results of these tests for each type of poliomyelitis virus.

4. Preparation of the Vaccines Used —Detailed studies concerning the nature and dynamics of inactivation procedures [7-9] for poliomyelitis virus for the preparation of vaccines have been reviewed recently.[10] Briefly, the multiple inactivation process utilized [5] is as follows: suitable filtered lots of each respective strain of virus to be used in the vaccine are subjected to incubation at 37°C with 1:4,000 formalin for four days, ultraviolet irradiated, filtered, and finally incubated at 37° C for an additional three days. Safety test samples [9] withdrawn following the filtration subsequent to the ultraviolet irradiation and again after the final three days of incubation establish the suitability of the individual strain pool lots for use in the preparation of final trivalent vaccine. More specific details of the processing and testing are contained in the previous report [5] and subsequent reports will detail further findings with purified aluminum phosphate adsorbed material.

Prevaccination Studies

A breakdown of the percentages of the group showing antibodies to a given type or particular combination of types is shown in Table 1. These values suggest that this population has been exposed to all three types of poliovirus

Table 1—Prevaccination Antibody Status of 782 Children from the Northwest Detroit Area

Per cent triple-negative		21.4
Per cent double-negative		39.3
Type I antibodies only	15.1	
Type II antibodies only	12.1	
Type III antibodies only	12.0	
Per cent double-positives		25.7
Type I and II antibodies	11.1	
Type I and III antibodies	7.8	
Type II and III antibodies	6.4	
Per cent triple-positives		13.6
Total per cent with type I antibodies		47.8
Total per cent with type II antibodies		43.4
Total per cent with type III antibodies		39.9

essentially to the same degree, although it may be said that Type I has been slightly more prevalent.

Postvaccination Antibody Response

Of the 168 triple-negative children determined in the preliminary screening, postvaccination bloods for five vaccines used in the trial were obtained from 133. These serums, obtained two weeks subsequent to the second inoculation, were tested simultaneously by the method described previously, and the results are summarized in Table 2. As can be noted in this table, triple-negative responses were obtained for each of the vaccines, in 38, 24, 28, 12, and 30 individuals. The geometric mean antibody titers were calculated in the usual manner and ranged as follows:

Type I	1:10 to 1:44.5
Type II	1:30.2 to 1:128
Type III	1:12.5 to 1:27.5

It is interesting to note that the response to Type I of the vaccines in the 2050 series is somewhat better than that for the vaccines representative of the 2040 series. This is not surprising since the 2040 series components were given a much longer formaldehyde treatment

Table 2—Antibody Response of Triple-Negative Children in the Detroit Study to Vaccination with Formalin-U.V. Poliomyelitis Vaccine

Vaccine	Sera Tested			Geometric Mean Titer			Per cent Nonreactors			Per cent Above 1:8		
	Type I	Type II	Type III	Type I	Type II	Type III	Type I	Type II	Type III	Type I	Type II	Type III
P-2043	38	38	38	1:13.0	1:65.0	1:14.0	5.26	2.6	10.5	30.0	94.7	50.0
P-2044	24	24	24	1:10.0	1:56.0	1:12.5	16.6	0.0	20.8	41.7	87.5	54.2
P-2056	28	28	28	1:17.5	1:76.0	1:17.0	7.1	0.0	14.3	78.6	92.9	53.6
P-2057	12	12	12	1:44.5	1:128.0	1:27.5	0.0	0.0	0.0	91.7	100.0	66.7
P-2059	30	30	30	1:23.2	1:80.2	1:17.0	3.3	0.0	6.7	76.7	96.7	63.3
NFIP 1954 Field Trial Vaccines *												
304	109	144	107	1:23.0	1:15.4	1:51.3	6.4	27.1	3.7	74.3	63.2	91.6
305	27	27	27	1:5.1	1:10.0	1:29.5	51.9	25.9	3.7	25.9	48.1	88.9
508	18	18	18	1:5.3	1:10.5	1:8.5	61.1	22.2	33.3	5.5	61.1	33.3

NOTE: Data on Detroit study vaccines determined from sera obtained from children two weeks after two inoculations spaced two weeks apart. Data on NFIP vaccines were taken from the "Summary Report, Evaluation of 1954 Field Trial of Poliomyelitis Vaccine" (1955). These data were based on tests of sera from children that had received three inoculations under the field trial schedule. These NFIP vaccines were given the following ratings in the field trial study.

Class	Lot	Type I	Type II	Type III
Good	304	Very good	Very good	Very good
Moderate	305	Fair	Good —	Good +
Low moderate	508	Fair	Good —	Fair +

* Calculated from grid plots on pages 22 and 23 of "Summary Report." [11]

(17 days as compared to seven days) at 37° C prior to the irradiation.[5] This additional treatment appears to have had little effect on the responses to Types II and III, as the results are quite similar for both series of lots for MEF-1 and Saukett.

In order to evaluate the significance of these results, means were calculated in the same manner as those data reported in the "Summary Report, Evaluation of 1954 Field Trial of Poliomyelitis Vaccine." [11] The comparative results from these calculations are given in Table 2. In the same manner the percentages which responded with a presumably protective level of antibody (greater than 1:8) to each type are also compared in the table. This level was chosen arbitrarily because it could be obtained from the data given in the "Summary Report." It is quite probable that any demonstrable level of antibody would indicate immunity,[1, 12] but

Table 3—Geometric Mean Antibody Response of Triple-Negative Children to Three Inoculations with Formalin-Ultraviolet Inactivated Polio Vaccine

Vaccine	Type I			Type II			Type III		
	1st Inoc.	2nd Inoc.	3rd Inoc.	1st Inoc.	2nd Inoc.	3rd Inoc.	1st Inoc.	2nd Inoc.	3rd Inoc.
2043	1.97	13.0	33.4	9.03	65.0	563.0	1.30	14.0	42.3
2044	4.12	10.0	31.2	24.9	56.0	811.0	3.21	12.5	46.3
2056	4.40	17.5	81.5	15.6	76.0	928.0	3.09	17.0	23.4
2057	4.71	44.5	278.7	29.9	128.0	878.0	1.82	27.5	87.9
2059	4.58	23.2	63.9	14.2	30.2	1,088.0	2.10	17.0	60.0
*2057A	2.25	56.0	399.0	18.9	214.0	1,359.0	0.0	15.0	224.0

* An aliquot of vaccine 2057 was purified and adsorbed on aluminum phosphate, see text.

the level chosen can be used as a basis for comparison. The relatively low percentage of nonreactors seen was not unexpected. Low response or lack of response for all three types was usually associated in the same individuals and can be readily explained on the basis of patient variation in responsiveness. It has been demonstrated quite conclusively by Salk [1] that one should probably anticipate a good "booster" response on later vaccination of such individuals.

Table 3 presents a summary of the geometric mean antibody titers obtained

Table 4

Vaccine Lot	No. of Children Injected			Illness Reports Investigated					
	1 Dose Only	2 Doses Only	3 Doses	"Colds"	Measles	C. Pox	Sore Throat	Miscellaneous	
090868 (2057 $AlPO_4$)		13	164	4	1	2	2	Temperature, conjunctivitis	2
								Stomach-ache	1
								Fainting	1
								Rash on face	1
								Nausea	2
								Sore arm	2
								Sore neck	1
090869 (2043)		1	156	5	4	2	1	"Flu"	1
								Rash on face	1
								Stomach ache	1
								Dizziness	1
								Vomiting, nose bleed	1
								Diarrhea	1
090870 (2044)		2	159	3	1	1	9	Nausea	1
								Cough	1
								Cough, chills	1
								Cramps in legs	3
090872 (2056)	1	2	170	5	1	6	2	Diarrhea	2
								Restless, scratching	1
090873 (2057)	4	9	314	4		1	3	Otitis media	1
								Appendicitis	1
								Headache, nausea, chills	2
								Vaccinia reaction	1
								Pneumonitis	1
								Ecchymosis at injection site	1
090874 (2059)	1	1	141	3		5	1	Nausea, temperature	1
								Abdominal pain	1
								Diarrhea	1
								Malaise	1
Total	6	28	1,104	24	7	17	18		36
	(	1,138	)						

from the entire series of bleedings; that is, the results obtained on final bleedings taken two weeks following the booster dose, given approximately four months subsequent to the second inoculation, are compared with the antibody levels observed following the first and second inoculations. It will be observed that the anticipated "booster" response was very satisfactory indeed and considerably higher than the response observed following the full series of three inoculations with the earlier NFIP vaccines shown in Table 2. Included in Table 3 are the geometric mean antibody titers of the vaccine which was adsorbed on aluminum phosphate, 2057A. It should be noted that the response following the second and third inoculations, particularly with Types I and II, are considerably higher than those observed with the corresponding fluid vaccine, 2057.

On the basis of these comparisons, the clinical antigenicity of these lots of formalin-ultraviolet-inactivated vaccine is considered to be approximately equivalent to, or better than, that of the best field trial vaccines.

Reactions

Parents were encouraged to call the Health Center if illness occurred during the study period. In such instances, these illnesses were investigated by a physician visiting the home when necessary. January, 1956, was a period attended by a rise in incidence of upper respiratory infections and interfered to some degree with the routine operation of the program and accounted for the majority of illness reports from parents. A tabulation of complaints is given in Table 4. One hundred and two reported illnesses were investigated; 84 of these were during the period between the first and second vaccine inoculations and the remaining 18 were reported within 15 days following the second inoculation. None was reported following the third inoculation; preoccupation with activities incident to closing of schools, school exercises, vacation plans, and so forth, probably accounted for the lack of illness reports following the final vaccine dose. So far as could be determined there were no overt reactions to the vaccine and no illnesses which seemed to be related directly to the administration of the vaccine.

Incidence of Poliomyelitis in the City of Detroit During This Period of Study

During the five years preceding the year 1956, poliomyelitis cases reported

Table 5

Health Center	Population (1956)	Poliomyelitis Cases					
		1951	1952	1953	1954	1955	1956
N.W.*	423,600	110	260	172	139	76	27
N.E.	450,400	75	173	153	167	50	37
Kiefer	256,300	46	85	66	52	32	20
B. Douglas	349,600	56	87	75	79	36	34
Gratiot	430,100	84	143	93	112	55	33
Total		371	748	559	549	249	151
5- to 9-year groups		105	208	157	168	79	38

* Study area.

in various areas of Detroit could be compared with the incidence in 1956, and in particular, with the reported cases in the northwest area where the study was conducted. These data are presented in Table 5. The total cases recorded for the Northwest Health Center area are contrasted to four other comparable health centers of the city. In addition, incidence of poliomyelitis among the five- to nine-year age group for the entire city is included. The progressive trend toward fewer cases of poliomyelitis as shown in Table 5 for the six areas is general throughout the city of Detroit. Conclusions cannot be drawn as to the degree recent vaccination programs may have contributed to this trend, or to what extent cyclic variation in the natural disease may be involved.

Discussion

During the developmental stages of the "Salk poliomyelitis vaccine," certain fundamental aspects of laboratory studies with tissue culture virus suspensions revealed the need for extensive quantitative studies relative to the dynamics of various inactivation procedures. With formalin inactivation [7] it was found that multiorder kinetics were probably involved in this chemical reaction as normally applied under manufacturing conditions, and that many uncertain factors contribute to make the use of time-scale extrapolation somewhat questionable as an index of inactivation.[2, 5, 9] Further, it was found that formalin-treated virus exhibits a delay in the initiation of the cytopathogenic effect of the virus upon tissue culture cells.[10] This effect was reflected and had to be considered critically in the evaluation of the tissue culture safety tests [9] utilized during the processing of virus for the preparation of vaccines.[3, 4] By the use of the combined formalin-ultraviolet irradiation inactivation procedure it was found that many of the factors could be more effectively controlled and reliable vaccines could be processed rapidly and consistently. It was possible to show that, when the combined chemical and physical inactivation procedures [5] were applied to commercially prepared vaccines, the combination produced an accumulative inactivating effect, resulting in products of comparatively better stability and potency than earlier ones. The clinical response to such vaccine is demonstrated in this report.

In addition, preliminary observations with a purified aluminum phosphate adsorbed vaccine (2057A, Table 3) indicate that increased potency may be expected from a comparable quantity of poliomyelitis virus antigen when it is used in conjunction with an adjuvant such as aluminum phosphate. The rate of absorption of antigen in the patient receiving the vaccination is decreased and the net final effect is greater. More detailed studies of this type of vaccine and its clinical effects are in progress and will be the subject of a subsequent report.

It should be emphasized again that the serologic responses recorded here (Tables 2 and 3) were obtained from individuals showing no previous experience with any of the three types of poliomyelitis virus; that is, "so-called" triple-negatives. In Table 2 the present vaccine responses are compared with comparable response data obtained from representative vaccines listed in the "Summary Report." [11] The results show that the antibody levels produced by only two inoculations of these ultraviolet-formalin inactivated vaccines are comparable to the antibody levels obtained with three inoculations of the earlier vaccines. The marked and anticipated "booster" response to the third inoculation shown in Table 3 was quite gratifying. While no great significance can at present be attached to responses observed to the third inoculation of the

aluminum adsorbed vaccine (2057A of Table 3), it is noteworthy that the antibody rise observed is greater for all three strains of virus than with the corresponding fluid vaccine.

Additional data now in preparation have substantiated the fact that this enhanced effect observed with vaccine 2057A is a consistent and reproducible finding. It should be pointed out that the relatively low (or lack of) response seen with the initial dose of Types I and III is a reflection of the slow absorption rate noted above following the administration of the aluminum phosphate adsorbed vaccine.

The creation of a hyperactive state has been discussed [1] and related to the question of whether or not persistence of measurable levels of antibody is necessary for effective immunity. It was concluded that poliomyelitis virus is an effectively potent antigen and that an individual once sensitized (by previous natural experience or by primary inoculation) will respond to a "booster" dose given at a later time regardless of the antibody level produced by the primary series. The vaccines of the 2040 series, Table 3, were treated with formaldehyde for 17 days in combination with the ultraviolet irradiation, while those of the 2050 series were treated for only seven days with formaldehyde and then ultraviolet irradiated. In general, the primary response (first and second inoculations) is not as good for the 2040 series as it is for the 2050 series. This same reasoning carries forward to the comparative booster responses. It appears reasonable to conclude that the results presented here at least substantiate the concept advanced earlier [1] and also that the antigenicity of poliomyelitis vaccine can be improved by attention to details of the inactivation procedures ultilized and by the incorporation of adjuvants such as aluminum phosphate.

Summary

The antibody conversion rate in children who did not possess antibodies to the three types of poliomyelitis virus has been determined following vaccination with trivalent ultraviolet-formalin inactivated poliomyelitis vaccines. Limited comparisons of the results obtained with the NFIP field trial vaccines were possible and in addition the relative effectiveness of the third or "booster" inoculation was studied. The adjuvant effect of the adsorption of the virus on aluminum phosphate was demonstrated.

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Forum on Health and Urban Sprawl

How to provide adequate health services for the 96 million people who live and work in metropolitan areas challenged the nearly 400 persons who took part in the 1958 National Health Forum of the National Health Council. Held in Philadelphia March 18–20, the forum brought together health and planning leaders, as well as political scientists, economists, sociologists, to explore their common problems with relation to the metropolitan complex and to find ways of working together to meet them.

Abel Wolman, professor of sanitary engineering, Johns Hopkins School of Hygiene and Public Health, as chairman of the 1958 Forum Committee, introduced the theme in an opening talk on "Urban Sprawl: Patterns, Implications, and Prospects." In his summing up of the forum, Dr. Wolman said, "The concept of community has as equal an emphasis on the individual as upon the mass . . . we cannot ignore the individual in order to make the mass progress as rapidly as possible."

Norvin C. Kiefer, M.D., chief medical director, Equitable Life Assurance Society of the United States, who took office as president of the Council at this meeting, suggested that the forum is successful "only if you leave here disturbed by previous problems of which you had not been more than vaguely aware."

Ruth B. Freeman, Ed.D., associate professor of public health administration, Johns Hopkins School of Hygiene and Public Health, was made president-elect and is chairing the Program Committee of the Council for the coming year. The secretary and two vice-presidents were reelected, respectively, Franklin M. Foote, M.D., executive director, National Society for the Prevention of Blindness; Leonard Mayo, director, Association for the Aid of Crippled Children; and James E. Perkins, M.D., managing director, National Tuberculosis Association. A third vice-president, W. H. Sebrell, Jr., M.D., director, Institute of Nutrition Sciences, Columbia School of Public Health and Administrative Medicine, was newly elected. Philip Mather, president, American Social Hygiene Association, was reelected to his ninth consecutive term as treasurer.

James H. Sterner, M.D., medical director, Eastman Kodak Company, is chairman of the committee to plan the 1959 National Health Forum, which will be held in Chicago in mid-March and will direct national attention to the health of America's workers.

Publication of a forum report is planned by the National Health Council, 1790 Broadway, New York 19, N. Y.

The jet injection method for rapid administration of biologicals has been widely used. Here is a report on its effectiveness for polio immunization as judged by antibody response.

ANTIBODY RESPONSE TO POLIOMYELITIS VACCINE ADMINISTERED BY JET INJECTION

Martha J. Lipson, M.D.; David H. Carver, M.D.; Morton G. Eleff, M.D.; Robert A. Hingson, M.D.; and Frederick C. Robbins, M.D.

DURING THE past decade the jet injection method for rapid parenteral administration of biologicals has been developed and tested. Both single and multiple-dose instruments are available.

Figge and Barnett [1] demonstrated that material injected by this method usually disperses into subcutaneous fat or muscle tissue. Their work indicated that accidental intravenous injection would not be more likely to occur than with the standard needle injection. Trauma to the skin was infrequent if the injector was properly used. Reports have appeared in the literature concerning the use of a jet injector for the administration of local anesthetic agents and insulin,[2] penicillin and streptomycin,[3-5] radioactive isotopes,[6] and promin and sulfones.[7] Automatic multiple-dose units have proved to be practical for the administration of vaccines in mass immunization programs. Warren, Ziherl, Kish, and Ziherl administered triple typhoid vaccine to 1,685 persons with a multiple-dose jet injector.[8] Elisberg, McCown, and Smadel [9] reported on the cutaneous and serologic responses to vaccinia virus grown on chorioallantoic membrane and administered by means of a multiple-dose jet injector to nonimmune children and persons with varying degrees of immunity. The results in the jet injection group were comparable to those obtained in the controls who received the vaccine by the usual multiple-pressure method and were far superior to those in the controls who received the inoculation subcutaneously by needle. Recently, Hingson, Davis, Bloomfield, and Brailey [10] have reported clinical observations on 1,000 persons given poliomyelitis vaccine with an automatic multiple-dose jet injector. They found that jet injection was well accepted by the patients and that it greatly increased the speed with which inoculations could be given.

In January, 1957, a program of mass immunization with poliomyelitis vaccine was undertaken in Cleveland, Ohio, under the auspices of the Cleveland Academy of Medicine in cooperation with the local departments of health and departments of education. One of the problems encountered in this program was that of providing an adequate supply of sterile syringes and needles, since it was decided that in order to mitigate the risk of transmission of hepatitis, each dose should be administered with a separate autoclaved syringe and needle. Also, a considerable amount of time was spent in loading syringes with the proper amount of vaccine. It was believed that a multiple-dose jet injector might be a

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solution to these problems. The present study was undertaken to determine whether the antibody response resulting from vaccination by jet injection was comparable to that following vaccination by needle and syringe.

Materials and Methods

Children were selected for this study from a larger group in a free poliomyelitis vaccination clinic at City Hospital, Cleveland. As parents came to the clinic with their children, the study was explained to them, and they were requested to allow their children to participate. With the exception of two 15-year-olds, the ages ranged from one to seven years. The children were alternately placed in either the jet injection group or the needle control group. Ninety-two children were originally selected. However, 31 failed to return for the second dose of vaccine, so that the final group consisted of 61. Thirty-four of these received the vaccine by jet injection and 27 by needle. A single lot of currently available commercial poliomyelitis vaccine was employed throughout this study.

The jet injector used was the multiple-dose Press-O-Jet developed by Ziherl, Kish, and Warren. Since the number of injections given in this study was small, a 15-dose, hand operated unit was used which is similar in other respects to the larger automatic motor driven apparatus.[10] A rubber shield which is applied firmly to the skin surrounds a central nozzle, through which the vaccine is delivered. Although the nozzle does not touch the skin, it closely approximates it. One ml of vaccine is delivered into the region of the triceps muscle. After the material is injected, the instrument is held in place for a few seconds and then removed.

The control group received 1 ml of vaccine with a 2-ml syringe, and a 24-gauge needle. Injections were likewise administered into the triceps muscle. In both groups the skin was sponged with alcohol prior to inoculation, and the small amount of oozing which occurred with both methods was controlled by pressure with a piece of dry sterile cotton.

A sample of venous blood was obtained from each child immediately prior to the first inoculation. The second dose of vaccine was administered after an interval of one month by the same technic as the first and 28–32 days later a second sample of venous blood was drawn.

Serum neutralization tests for poliomyelitis antibodies were done on the paired sera from each participant by the metabolic inhibition technic of Salk, Youngner, and Ward.[11] Serial twofold dilutions of sera starting at one in four were used in the test with one tube per dilution. Results are expressed as the reciprocal of the serum dilution. A titer of less than four was considered to represent no antibody.

Results

Table 1 indicates the distribution of the children according to presence or absence of neutralizing antibody for one or more types of poliomyelitis virus in the prevaccination serum specimen. Twenty-five of the children in the jet injection group and 16 in the needle group had no demonstrable antibody.

Table 1—Description of Study Population

	No. Studied	Average Age (Years)
Jet Injection		
No prior antibody	25	3.8
Prior antibody	9	6.3
Needle Injection		
No prior antibody	16	3.6
Prior antibody	11	4.5

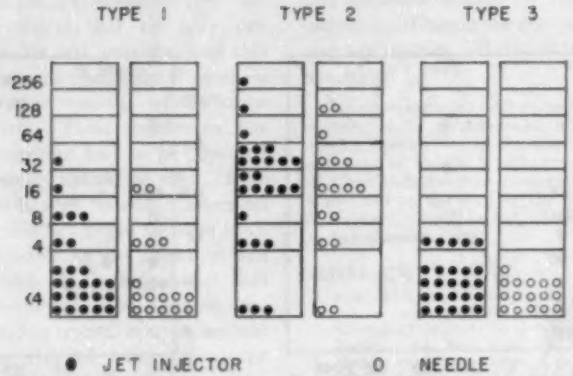

Figure 1—Comparison of Antibody Titers One Month After Second Dose of Vaccine Administered by Injector or Needle in Children with No Prior Antibody

The average age of the children in the two groups was 3.8 and 3.6 years, respectively. Nine children in the jet injection group and 11 in the needle group demonstrated an antibody level of four or greater to at least one type of poliomyelitis virus prior to vaccination. Of these, there were four in the jet injection group, and one in the needle group with antibody to more than one type. The average ages in these two groups were 6.3 and 4.5 years, respectively. Figure 1 compares the results obtained by injection of the vaccine by jet injector with those obtained with needle inoculation in children with no prior antibody. There is no apparent difference in antibody response in the two groups. The response to Type II was the best as only three children in the jet injector group and two in the needle group failed to develop antibody to this type. The response to Type I and Type III was poor in both groups. There was one child in the needle group who demonstrated no antibody to any type after the second dose of the vaccine. All of the children in the jet injector group developed antibody to at least one type.

Figure 2 demonstrates the change in titer in the children who had antibody to at least one type prior to vaccination. The titer prior to vaccination is plotted along the horizontal axis and the titer one month after the second dose is plotted along the vertical axis. Thus all points above the 45 degree line indicate a rise in antibody titer. Except in one instance, if antibody was present prior to vaccination, an increase in the titer of this antibody was noted in the second serum specimen. If no antibody was present to a particular type, the response was somewhat better than in those children with no prior antibody to any type; however, the difference was not great. Again, there is no evident difference in response between the jet injection and needle groups.

Comment

From the results obtained in this study it is evident that the antibody response to two doses of poliomyelitis vaccine administered by the Press-O-Jet was comparable to that resulting from injection by needle.

The time consumed and the cost of administration of a single dose of vaccine are much greater using one syringe and needle for each injection because

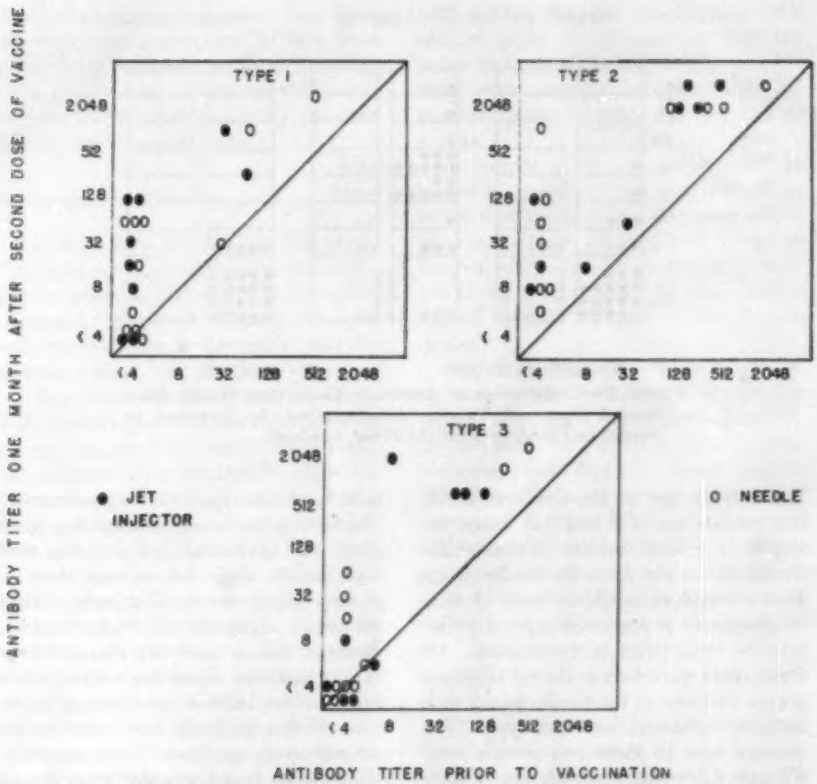

Figure 2—Comparison of Antibody Response to Vaccine Administered by Jet Injection or Needle in Children with Prior Antibody

of washing, sterilization, packaging, and delivery of syringes and needles, as well as loading syringes with the vaccine.

Since all of the children had a blood specimen drawn from the anticubital vein immediately prior to receiving the vaccine, it was difficult for us to compare the subjective reactions to the two methods of vaccine administration. The Press-O-Jet injection was accompanied by a short buzz which tended to startle the smaller children. Among the older children, some described no pain; others received a mildly painful stimulus; and a few felt a sharp pain. In our experience certain lots of poliomyelitis vaccine seem to produce more pain than others regardless of the mode of administration. Most of the children were curious about the machine at the time of the first injection, although some were frightened. After the inoculation, there was frequently a small amount of leakage of vaccine from the puncture site in both groups, accompanied occasionally by a small amount of blood.

We observed blood on the nozzle of the jet injector on two different occasions. Bloomfield, Levy, and Brailey [12] tested the nozzle of an automatic jet injector for occult blood immediately after the administration of each of 300

individual doses of poliomyelitis vaccine. They found that on only one occasion was the test positive, and this occurred when an individual received a second dose of vaccine in the same site as the first. Their conclusion was that if the injection had to be repeated another extremity should be used. Elisberg, McCown, and Smadel [9] observed that exudate did not begin to form until 10 to 30 seconds after the injection had been completed. It is their belief that prompt removal of the injection apparatus would prevent contamination. Although the risk of transmitting the virus of hepatitis is slight, it does exist; and in using this instrument care should be taken to avoid accidental contamination with blood or tissue juices. Subsequent local reactions were rare in either group. A few subjects reported small ecchymoses 24 hours following the jet injection. There was no evidence of severe trauma to the skin or other sequelae.

Summary

A multiple-dose jet injection apparatus was tested in a group of 34 children for its effectiveness as a method of administering poliomyelitis vaccine. Twenty-seven children served as controls and received the same vaccine by syringe and needle at the same time. Serum specimens obtained prior to the first injection of vaccine and one month following the second dose were tested for poliomyelitis antibody. The results indicate that antibody response following jet injection was as great as after the standard method of vaccine administration. Comments are made concerning advantages and disadvantages of the machine.

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In many instances, aircraft have a requirement for feeding in flight. Problems created by this need are of interest and concern to many public health workers. This report examines the preventive medical aspects of flight feeding and describes two new means of meeting inflight feeding needs.

PREVENTIVE MEDICINE ASPECTS OF FLIGHT FEEDING

Lt. Colonel Albert A. Taylor, D.V.M., M.P.H., F.A.P.H.A., and Beatrice Finkelstein, M.S., F.A.P.H.A.

THE U. S. AIR FORCE, like any large modern industrial organization, is concerned with the influence of nutrition upon qualitative work performance, accidents, and the general well-being of its people. For obvious reasons, particular interest is centered by the U. S. Air Force in the food needs of aircrews. This paper outlines the role of food during flight as it relates to preventive medicine. It also describes some current research and development concerned with food during flight.

Preflight Feeding

Flight feeding is an all-inclusive term which embraces pre-, in-, and postflight feeding. Ordinarily, effective preflight preparations, above and beyond the usual day to day well balanced diet necessary for maintaining optimum health, include a carefully selected meal eaten one to two hours prior to departure. This meal should be liberal in protein content, bland, yet palatable, and easily digested. Foods which are common offenders with respect to gastric distress should be avoided. These include foods rich in fat, highly seasoned foods, and foods containing liberal amounts of roughage. In addition, it is important to diminish or prevent difficulties produced at high altitude by the expansion of gases in the gastrointestinal tract. With a decrease in atmospheric pressure gases expand to double their original volume at 18,000 feet and to approximately five times their volume at 38,000 feet. Pressure exerted by gas expansion of this magnitude may result in serious gastric discomfort. Complete prevention of the production of intestinal gas is not possible. However, the frequency and intensity of this difficulty can be diminished by control of preflight food intake. Carbohydrate rich foods which tend to ferment in the lower intestinal tract should be eliminated from the diet. Foods consistently associated with gas production, such as vegetables of the cabbage family, dried peas and beans, melons, radishes, beer, or carbonated beverages, should not be eaten before flight. In addition, personal food idiosyncrasies which manifest themselves in intestinal gas formation must be considered.

Flights frequently begin in the early morning hours. The preflight meal is consequently a breakfast meal. This meal should be rich in protein foods;

that is, it should contain milk, meat, and eggs. Such a breakfast promotes a sense of well-being and a high level of efficiency. These physiological reactions are produced by the relatively slower digestion, absorption, and metabolism of protein as compared to carbohydrate. Hence, there is a steadier supply of glucose to the blood.[1]

For special missions involving unusual stresses it may be necessary to control diet two or three days prior to flight. This is true for high-altitude, long-duration flights during which aircrews must wear pressure suits. Protective clothing of this type precludes defecation during flight. In order to cope with this problem pilots should be placed on a high-protein, low-residue diet 72 hours before take-off. The objective of such a feeding regimen is to provide foods which can be completely absorbed from the gastrointestinal tract thereby leaving no residue for the formation of feces. Meat, rice, eggs, sugar, small amounts of fruit juices, tea, and coffee form the basis of this low-residue diet. Other foods, such as strained fruits and vegetables, clear broth, cottage cheese, and butter are used in moderation to supplement the aforementioned foods. Since milk is a high-residue food, it is not used in food preparation or consumed as a beverage.

During flight, as will be discussed later, it is desirable to maintain aircrews in a state of water balance. Effective flight feeding, therefore, provides liberal amounts of liquids and beverages. For high-altitude, long-duration flights no alcoholic beverages should be consumed during the 24-hour period preceding flight. This preventive measure is based upon the dehydrating effect of alcohol.

Inflight Feeding

During flight, improper food intake together with anxiety, irritation, fatigue, monotony, drowsiness, and discomfort decrease flying safety and increase accident hazards. These physical and psychological stresses are aggravated by sudden change in barometric pressure, rapid temperature fluctuations, abnormal oxygen tension, turbulence, vibration, restrictive clothing and protective equipment, and cramped position.[2] In addition, aircraft environmental conditions may affect the palatability of food, as well as the desire for it, and create dietary dissatisfactions which adversely affect morale. On the other hand, appropriate food and drink tend to relieve boredom, ease tension, soothe irritation, and counteract stress. Thus, food is significant, not only for its usual and direct physiological role, but also because it can enhance morale and increase flying safety. The emotional value of food assumes great importance under highly restricted flight conditions, particularly on flights of extended duration.

In the air abnormal feeding is often dictated by the profile of the mission and the type of aircraft. Aircraft limitations of weight and space, restricted aircrew movement, and use of the oxygen mask make normal eating very difficult, and often permit only an inadequate food intake. On long missions the nutritional aspects of crew support become especially important. Modern aircraft require a high degree of mental efficiency at all times on the part of crew members. Both mental and physical performance can be affected by the extent to which food intake meets nutritional requirements. Long periods between meals result in nervousness, irritability, and tension. Shortening the period between meals with reduction in their size is beneficial. This also prevents the feeling of drowsiness which follows the consumption of a large meal. Large meals are physically inconvenient for people who are forced to remain in restricted positions and in certain postures in order to maintain their aircrew duties. Proper flight nutrition, therefore, is best

Figure 1—Foil Pack Meals in Aircraft Oven

secured by consuming appropriate foods in light, frequent feedings.

In addition to food, fluid intake is an important factor in maintaining peak efficiency of aircrews. A water loss, from all avenues including sweating, of even 2 per cent of body weight can lower efficiency.[3] For high-flight performance fluid intake must, therefore, aim to approach water loss. In hot environments men tend to dehydrate between meals. They may feel fatigued when their loss of energy is actually caused by dehydration. Most people drink the liquid they need at meal time or shortly thereafter. Thus, water balance is restored to normal or slightly higher. Again, we have cause to stress that aircrews should eat frequently. Thirst is not always a strong enough sensation to indicate the amount of water needed. The mere availability of liquids does not necessarily alleviate dehydration. Drinking should be encouraged. Highly acceptable fluids should be provided in readily accessible form. Drinks should be kept cold, beverages and soups should be hot, and the variety of items should be fairly large.

Food-borne infections and intoxications are always distressing and become particularly dangerous when they develop during flight. These can occur from the perishable components of meals eaten before and during flight. High standards of kitchen sanitation and refrigerated storage on the ground and in the air can prevent food poisoning. Prevention involves the suitability of the food as a bacterial media, the time-temperature factors of bacterial growth in foods prior to consumption, and also the design, use, and cleanliness of food-servicing equipment as it affects contamination. Meals eaten during flight must be such that they can be safely consumed. Since refrigeration is not available on many types of aircraft, meals should perferably be bacteriologically safe when kept unrefrigerated, i.e., they should be unfavorable media for bacteria.

Recently a new system of inflight feeding, known as the Foil Pack Inflight Feeding System, has been developed and authorized for use in large aircraft where weight, space, and power are fairly ample. This feeding system provides meals which consist of five menu items in separate aluminum foil containers: meat, potatoes and another vegetable, a hot roll, and a dessert. Except for the searing of meats and the partial cooking of certain foods, all items are packaged uncooked on the ground. Since these meals are good media for bacteria, they are taken aloft in a refrigerator. The foods are cooked during flight in light-weight aircraft ovens (see Figure 1). Thus, aircrews are served freshly cooked, hot meals, attributes which give these meals high-consumer acceptance. Meals are served on disposable lap trays and are eaten from the foil containers in which foods are cooked (see Figure 2). The Foil Pack Inflight Feeding System was field tested on RC-121, Super Constellation, early-warning, radar-patrol aircraft assigned to the Eighth Air Division at McClellan Air Force Base, Sacramento, Calif.[4] During this field test nearly 9,000 meals were served.

Data obtained from this study showed that foil pack meals are highly acceptable and are preferred to all other types of flight meals currently authorized for use by the Air Force.

A bacteriological study of foods in the Foil Pack Inflight Feeding System showed little or no bacterial growth after 120 hours of storage at ordinary refrigerator temperatures. Standard plate counts, coliform counts, and presumptive tests for food-poisoning organisms were performed on meals which had been stored 24, 72, and 120 hours at ordinary refrigerator temperatures. It has been established that foil pack meals can be safely consumed up to five days after preparation when stored at ordinary refrigerator temperatures of 35° F.[5, 6] In addition to other advantages, this finding makes the Foil Pack Inflight Feeding System applicable to flights which will possibly be made some time in the future involving days rather than hours. On such flights, feeding comparable to that on the ground will be necessary to maintain efficiency of aircrews.

In high-performance aircraft facilities for eating are especially critical, and at times unavalible. As the original flight durations of some of these aircraft were short, feeding was initially deemed unnecessary. However, range extension technics have changed this situation. The flyer, it is apparent, should be refueled as adequately and as consistently as the aircraft. Men must be fed where little or no space or weight allowances can be secured for food service equipment, storage of food, or serving of food. In extreme cases these restricted conditions are almost prohibitive. Specialized foods and feeding technics are needed.

A five-pronged developmental program is now in progress to develop foods capable of meeting the feeding needs of crews flying high-performance aircraft. These foods must be such that they are bacteriologically safe without refrigeration, are physiologically suitable for consumption during flight, and are highly acceptable when eaten cold. They must also require no preparation aboard the aircraft, and be such that they can be readily consumed with one hand. The five prongs of this program seek liquid foods, food tablets, semisolid foods, a stable food packet, and a compact box lunch. The first four of these are currently in various stages of development. Development of the last one, the Compact Box Lunch, has been completed. The Compact Box Lunch is a modified sandwich-type of lunch suitable for consumption on the B-47 jet bomber and similar aircraft.[7] The lunch has six menus: three for consumption within five hours from the time of preparation, and three for consumption up to 20 hours after preparation (see Figures 3 and 4). Foods used in these last three menus do not provide good media for bacterial growth. Protection from dehydration at high altitude, compactness, bite-size components, and ease of eating are characteristics which maintain acceptability and increase the utility of this meal. Extensive tests in B-47 jet bomber aircraft were carried out at three Air Force bases within the

Figure 2—Foil Pack Meal Served on Multipurpose Lap Tray

Figure 3—Compact Box Luncheon Packaging Arrangement

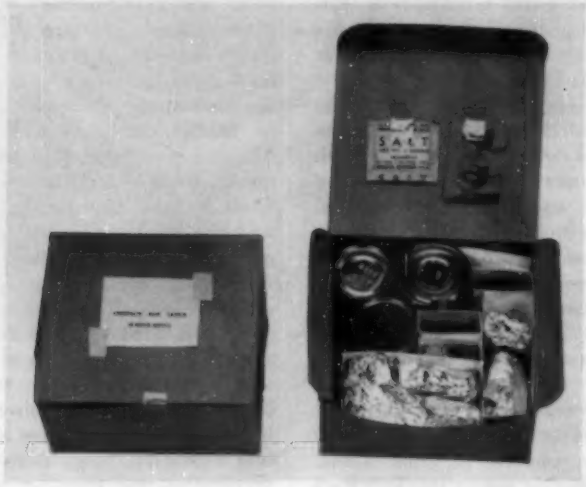
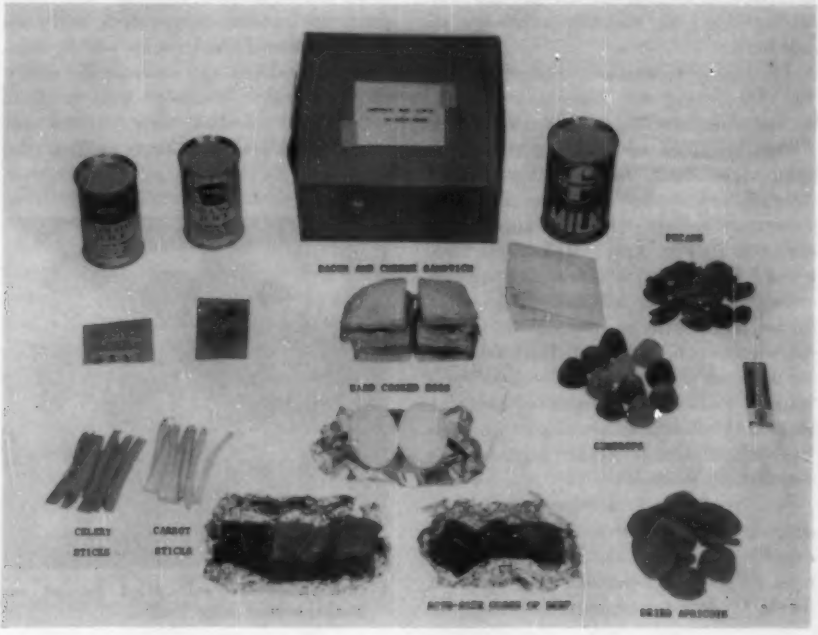


Figure 4—Compact Box Lunch Components—20 Hour Menu



Strategic Air Command during development of the lunch. To add variety and enhance acceptability the Compact Box Lunch includes pasteurized bite-size cubes of steak in two of the six menus. The Compact Box Lunch is now ready for operational use.

Postflight Feeding

In postflight feeding food again serves not only as a source of nourishment, but also as an aid to relax tensions and enhance morale. A complete dinner meal, high in protein, will rapidly restore the body to maximum efficiency after the physical, mental, and emotional strain of flight. In instances where there is marked fatigue a period of rest or a light snack followed by a period of rest should precede this dinner meal.

Summary

Flight feeding, nutritionally speaking, involves all of the intricacies of feeding on the ground. To these must be added limitations imposed by the type of aircraft, the length of flight, the decreased atmospheric pressure, and the hazards entailed in flying. The preventive medical aspects of flight feeding have been examined. In addition, two new means of meeting current inflight feeding needs have been described. These include the Foil Pack Inflight Feeding System, which provides freshly cooked, hot meals for crews and passengers on patrol, transport, and cargo aircraft, and the Compact Box Lunch, which was designed for use in combat jet aircraft. Both of these new systems of feeding have been tested extensively during flight in suitable aircraft. They provide adequate means of flight feeding in the situations for which they were developed. Foods for use in fighter aircraft are currently being developed.

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Here is an over-all view of Soviet public health by an experienced observer. Dr. Parran presents impressions gained while he was chief of the U. S. Public Health Mission to the Soviet Union.

PUBLIC HEALTH INSIDE THE U.S.S.R.

Thomas Parran, M.D., Dr.P.H., F.A.P.H.A.

OUR MISSION visited nine cities in five of the 15 republics of the Soviet Union during four weeks as guests of the Ministry of Health. Traveling some 8,500 miles in the country, we visited 61 different institutions, including medical colleges, medical schools for the training of subprofessionals, sanitary-epidemiologic stations, houses of health education, blood transfusion services, general and special hospitals, polyclinics, the Academy of Medical Sciences, scientific research institutes, rest homes, industrial plants, collective farms, city markets, public schools, and the headquarters of eight ministries of health.

A word about the land and the people. The Soviet Union contains one-sixth of the land area of the world; it is three times as large as the United States. From west to east it encompasses 171 degrees—180 degrees is one-half of the earth's circumference—and from north to south some 2,500 miles. It is a conglomeration of 125 different races, tribes, languages, and dialects in its 15 republics and 14 autonomous republics. The "autonomous republic" contains a minority racial group located within the boundaries of one of the 15 Soviet Socialist Republics; it has some cultural autonomy and some political representation even in the higher echelons of the Communist Party.

The civil subdivisions are the 15 republics, including the autonomous republics. The next lower subdivision is called an oblast, a substantial number of them in each republic. The administrative region below it is the rayon, of which there are 4,500, compared with our 3,100 counties. Finally, at the lowest level—you might call it a township or a ward of a city—is the uchastok, of which there are nearly 20,000.

Health in its broadest sense has a high priority in the Soviet Union, in a "land where nothing material has ever been achieved unless it was colossal, nor without an infinity of human sacrifice." In the Russian philosophy the worker is a "fund of gold" for the country. Hence, it is important to mobilize the maximum of human power for production. In other words, they do not have the humanitarian motivation for health which we consider important in the Western world; it is purely utilitarian. Such Soviet slogans as these have real meaning: "Our greatest concern is for man"; "Everything for the health of the working class." These concerns, I repeat, are founded on the principle of sustaining human working power for the state by every means. Stalin has said, "Of all the precious materials in the world, the most precious are men and cadres." Another Communist statesman has said, "Damage to the health of workers is less harmful than damage to production."

Man is the center of interest in this Communist society and this conception establishes the position, role, and im-

portance of public health in its structure.

What is the structure of the health service in the U.S.S.R.? To understand it we must reorient completely our U. S. concepts. At the head is the Ministry of Health, one of 52 reporting directly to the Praesidium, the all-powerful Council of Ministers. It has a budget of 35.3 billion rubles—6 per cent of the total budget of the U.S.S.R.

The Ministry of Health controls and directs all medical practice and facilities, all education of physicians—both general and specialized—and of all paramedical workers; the production and distribution of medical supplies, pharmaceuticals, vaccines, instruments—in fact everything imaginable used in hospitals, or in medical care, or in health and sanitation services.

Administratively, the U.S.S.R. Ministry of Health is divided into four major operating sections:

1. The treatment and preventive service—hospitals, polyclinics, special dispensaries, etc., including all salaries—67 per cent of the budget.
2. Child care, prophylaxis, and treatment—12.8 per cent of the budget.
3. The hygienic-epidemiologic service—including health education—which has been the keystone in the whole Soviet health structure for a long time—4.7 per cent of the budget.
4. Medical education and medical research institutes (the latter chiefly through the Academy of Medical Science)—8.7 per cent of the budget.

Other costs, including administration, construction, etc., account for 6.8 per cent of the budget. In addition, there is a planning section, or institute, and a finance section.

The whole "medical industry"—including surgical instruments, x-ray, drugs, and other pharmaceuticals, hospital equipment and supplies—is not included as such in the above budget. Moreover, the physical facilities for health in industry, in physical culture, in rest homes, and on collective and state farms are provided by the industry concerned. Also, one should add to the U.S.S.R. health budget the medical service for railway workers, operated by the Ministry of Transport, but under standards prescribed by the Ministry of Health.

In each republic there is a ministry of health with a minister, a deputy minister, and the usual branches one would find in health departments most anywhere. The health officer of the republic has subordinate to him health departments in the oblasts and in the rayons. These health officers have a dual line of responsibility: one is the line vertical to the Union Ministry of Health; the other is lateral—to the government and party of the republic, for example. The sanitary-epidemiologic service has still another line of authority. I do not know how I can express it, except to say that perhaps the head of a department of sanitation here in a county is responsible to the county health officer, and he also has certain responsibilities in regard to standards and the enforcing of regulations, etc., both to the state and federal chief sanitary engineer. In any event, the deputy minister of health for the hygienic-epidemiologic service is considered one of the important officials in the Union Ministry.

A word about medical education and hospitals. There are 87 medical colleges ("institutes"). The present Five-year plan calls for the production of 16,000 physicians per year, more than double the U. S. output; 80,000 in the five-year period. Also being trained annually are 60,000 auxiliary personnel; 300,000 in five years. In the same period new hospital beds amount to 340,000; add to this 312,000 more beds in crèches.

At present there is about the same ratio of physicians and of hospital beds to population in our two countries.

The basic training of a medical student is 10 years of public school education plus six years in a medical college. The program lasts for 10 months of the

year, five and a half days per week, with only four days as holidays. Hence, after a total of 16 years of schooling, a physician is eligible for licensure to practice. This compares with 20 or 21 years in this country.

The U.S.S.R. emphasizes quantity, in contrast with our greater emphasis upon quality. We saw a wide variation in the quality of medical training. Most everywhere their facilities are overcrowded by our standards. In several medical colleges we found a lack of proper facilities, especially in the basic or preclinical sciences.

After the basic six years in a medical college, the physician may become an "aspirant" by studying three more years, aspiring to be a "candidate." This is essentially comparable to a post-M.D. master's degree. Then toward the top of the group are the doctors of medical science, requiring at least five years of graduate training and research. These are the major professors and research scientists. They receive much more recognition in salary and status than do the professors in our universities or the leading scientists in our governmental service.

In the Soviet Union the few professors selected as corresponding or as full members of the National Academy of Medical Sciences are at the summit in the medical hierarchy.

Let me try to summarize some of our impressions and conclusions.

High priority is given to health in order to maximize manpower in the service of the state. Public health and medical care represent a unified service throughout the U.S.S.R., under the central direction of the Ministry of Health. More recently, some responsibility and authority in health affairs has been given by Moscow to the republics, but under central budget control—especially for new construction—and strict control of standards. One example cited to us by the acting minister of health was, "I have control over the kind of construction that goes into any building from the largest hydroelectric power station to a cinema."

Special emphasis is given to the prevention of disease throughout the entire Soviet health structure in an integrated system of prevention and cure. Medical care is available without cost to the patient. Mothers are encouraged, in fact almost required, to bring their children to pediatric clinics in accordance with a regular schedule for examination and immunizations. Prenatal care is freely available. In industrial establishments preemployment physical examinations are given which are repeated each year, or when the occupation is hazardous at more frequent intervals. Health education is strongly emphasized, each physician being required to give at least three hours of public lectures each month, for which they receive extra compensation.

We were somewhat skeptical when we went to the U.S.S.R. as to whether or not their published staffing patterns—the numbers and types of personnel in rural and urban areas, in hospitals, polyclinics, and factories—really applied in the remote areas. Actually, by and large, we found that the health personnel were there, working conscientiously at their tasks, with a real interest in their patients as human beings.

There is a wide distribution of medical personnel and facilities. The sanitary-epidemiologic services, in some 2,600 stations, are operating in accordance with published reports. This service long has been the backbone of the system for combating epidemics. As the major infectious diseases have been brought under control, the sanitary-epidemiologic services are being merged at the periphery with the rural hospitals.

Physicians in the U.S.S.R. work at many tasks which here usually are performed by other personnel. That is, they do their own clerical work as indicated, since typewriters are in short

supply; they specialize in sanitation; they do health education; by and large, they do the laboratory work, except tasks at the lower level; and such statistical work as is done.

In the operating room one does not see a surgical nurse; one sees assistant and aspirant surgeons. In fact, there is no exact equivalent in the Soviet Union of our trained nurse—our R.N. The training of the subsidiary personnel now requires 10 years of schooling—until recently, seven—and now two years of training in what they call a "lower medical school." Usually these are separate from the medical colleges or "institutes." They think it is unwise to mix up the training of different professions together. However, the training of nurses and feldschers—the terms now mean practically the same, since the training is identical—is minimal, with only 12 years of total schooling.

I should emphasize the fractionated and compartmented system in training, research, and practice. This may serve the immediate needs of the state, but it certainly has truncated, even desecrated, the traditional European "university" concept.

Professional training is free and is closely identified with political indoctrination. The young graduate must serve three years where assigned. A formal medical hierarchy exists which, through rewards in status and cash, provides strong incentives to physicians to advance their training. The minimum basic wage of young physicians is 750 rubles per month; that of a distinguished professor, 6,000 rubles, or more. An airline hostess gets 1,400 rubles, a truck driver from 1,200 to 1,600. Nurses and feldschers start at about 500 rubles per month and go up to about 750.

The general quality of medical care falls well below that of this country, but it is widely available and without cost to all.

The hospitals we saw are poorly planned, badly constructed, and inadequately equipped and maintained by our standards.

There is essentially no freedom of choice of physician by patient; also the good physician has very little mobility.

There is no direct payment by the patient for hospital or medical services. (The only exceptions we found were that an ambulatory patient bought his own drugs, eyeglasses, and prostheses from state stores at a reduced rate. However, a diabetic receives insulin without cost, and an ambulatory tuberculosis patient, streptomycin and isoniazid.)

Great emphasis is put upon physical medicine of all types—balneotherapy and electrotherapy, mud baths, and so forth. Actually, I think this is the Russian version of psychotherapy combined with physiotherapy—and probably a good deal cheaper!

Much new housing is under construction, but it is of poor quality. There is still severe overcrowding.

In regard to sanitation, central water supplies are provided in all the central Asian cities we visited. About two-thirds of the people in these cities get water from a faucet in the street. Frequently, outdoor privies are used; in some cases there were cans inside the seat. In instances where there is a flush toilet in the apartment the wastes usually run into an open or closed drain or canal.

There are generous provisions for child health and for prenatal and maternity care, including four months maternity leave with pay. One should recall that about a year and a half ago abortions again were legalized. In the several places where we made inquiry at maternity hospitals in different areas of the country abortions were as high as 85 per cent of the number of live births.

As might be expected, we were asked many questions by our Russian colleagues. Most of them we could answer with pride, but not "Why are there so

few Negro physicians in the U. S.?", or "Since medical education is so costly, can the son of a working man get a medical education in your country?"

The point is that in the U.S.S.R. there are no financial barriers to getting a higher education; hence, they can draw upon their total supply of able and talented youth for their scientists, physicians, and administrators.

Dr. Parran, dean, Graduate School of Public Health, University of Pittsburgh, Pa., served as chief, U. S. Public Health Mission to the U.S.S.R., August-September, 1957.

This paper was presented before the National Citizens Committee for the World Health Organization at the Eighty-Fifth Annual Meeting of the American Public Health Association, in Cleveland, Ohio, November 13, 1957.

A Minority Note on Scholarships

At the hearings on the federal scholarships for science bills (S 3163 and S 3187) before the Senate Committee on Labor and Public Welfare, John T. Caldwell, representing the American Association of Land-Grant Colleges and State Universities, testified in opposition. His opposition was based on the fact that the bills represent long-range attacks on United States education problems, whereas the critical period for which action is needed is the decade immediately ahead.

Mr. Caldwell further indicated that providing scholarships would only aggravate the current critical problem, since the shortage is not in students but in qualified teachers backed by adequate facilities in which to do their jobs. He suggested rather aid at the graduate level and direct aid to colleges. The latter would make better wages for instructors and thus provide incentive for better teachers. Mr. Caldwell also recommended upgrading of facilities. "Find out where and why the problem exists before starting a federal scholarship program," was his plea to the congressmen.

At the same hearing, Clark A. Dunn, National Society of Professional Engineers, indicated the big need in United States science as quality not quantity. "The primary concern of the government should be with improving the quality of students." He asked for better salaries, more liberal tax treatment, and more support for fellowships for teachers.

Abortions are prominent as a cause of hospitalization in Israel. There are marked differences in the incidence of abortion among women born in Israel, Europe, America, and in the Oriental countries. The problem of abortion is examined in regard to country of origin and length of stay in Israel.

THE INCIDENCE OF ABORTION AMONG JEWISH WOMEN IN ISRAEL

H. S. Halevi and A. Brzezinski, M.D.

As THE great achievements of medicine and civilized societies in the fields of maternal and infant mortality unfold, growing importance is attached to the problem of fetal wastage. The low birth rate in many countries, and the efforts to keep populations at least on a stationary level add to the interest and importance of clarifying the factors underlying fetal wastage. Israel with its heterogeneous population, comprising communities from different geographic regions and ethnic groups, with varying demographic, sociologic, and genetic patterns, can, by providing opportunity for differential analysis, make a contribution to the elucidation of this problem.

Fetal wastage can be divided into three main groups — abortions, stillbirths, and early infant mortality (up to the age of one week). The most difficult one to elucidate is the group of abortions. Registration of stillbirths and infant mortality exists, and even if not complete, gives a fairly reliable picture of the situation as regards these groups. Table 1 gives data on these demographic features of the Jews in Israel.

An attempt to collect complete figures on abortion is bound to fail, even in the most advanced countries. There are many cases of abortion that are not notified or registered, and this applies to both spontaneous and induced abortions. There is a definite proportion of spontaneous abortions that are complete abortions in the very earliest stages of pregnancy, where the patient not even realizing the fact of her abortion, does not apply for medical attention. As to induced abortions, the question arises, concerning the degree to which they are known statistically, and when they are registered, whether their induced character is reported. There can be no doubt that a proportion of induced abortions are cared for at home or outside of recognized medical institutions, and therefore remain unreported.

The general incidence of spontaneous abortion has been established as being very close to 10 per cent of all pregnancies. Eastman [1] gives a summary of the prevailing trends with regard to the incidence of abortion, and presents a list of authors who concur with this estimate. Their figures are within very narrow limits: Danforth and Galloway —11 per cent; Hertig—10.6 per cent; five American authors—9.8 per cent; Guttmacher—9.8 per cent; Stix—10.9 per cent; Pearl—11.8 per cent; Wiehl and Berry—9.7 per cent. Eastman con-

Table 1—Births, Stillbirths, and Early Infant Mortality, Israel (Jews Only) 1952–1955

Year	No. of Live Births	Birth Rate	No. of Stillbirths	Stillbirths per 100 Total Births	No. of Early Infant Deaths	Early Infant Mortality *
1952	45,131	31.57	714	1.58	469	10.4
1953	44,364	30.23	680	1.53	544	12.3
1954	41,046	27.35	590	1.44	470	11.5
1955	42,339	27.22	577	1.36	469	11.1

* Deaths per 1,000 live births.

No figures were available on the general or differential incidence of abortion. As far as we know, this paper offers the first calculation and publication of such figures.

cludes these observations by stating that "neither race, social status nor parity seems to affect this incidence." Anderson of the Johns Hopkins Medical School estimates [2] also that 10 per cent of all pregnancies in the United States in 1950 ended in spontaneous abortions.

In Britain the extent of abortion was officially estimated [3] between 110,000 and 150,000 every year. This means even a higher ratio than 10 per cent of all pregnancies if the total number of births is considered, but this includes also the known induced abortions.

Estimates of induced (criminal) abortions are more difficult to make, and necessarily less reliable. Taussig in 1936 [4] calculated an incidence of one abortion to every 2.5 viable births in urban communities in the United States, and one to five births in the rural regions. After deducting 10 abortions per 100 pregnancies on account of spontaneous abortions, he arrived at the estimate that from 11 to 12 per cent of all pregnancies are terminated by induced abortions. Taking into consideration less than 1 per cent therapeutic abortions, the total incidence of abortions is therefore about 22 per cent of pregnancies.

There is, however, a very wide margin between the estimates of various authors with regard to induced abortions. Eastman mentions that in a New York obstetrical clinic the frequency of induced abortions was found to be 20 per cent, while Wiehl and Berry, in a study of a population sample, reported only 4 per cent.[4] Taussig, as quoted by DeLee, divides the total incidence of abortion into one-third spontaneous and two-thirds induced.[5]

Thompson,[6] dealing with the problems of abortion from a demographic view point, states that the number of induced abortions in Berlin (Germany) before the Nazi regime exceeded the number of births. The number of illegal abortions in Sweden is estimated to be 10,000 as against 130,000 births. The number of legal induced abortions in Sweden increased from 500 in 1939 to 1,600 in 1945, after the ratification of the new liberal law. From samples taken in the urban population of the United States, Dorothy Wiehl estimated an incidence of 15 per cent abortions, and somewhat less in rural populations.[7]

In Japan, where a very active restrictive population policy is operative, the incidence of abortions is on the increase. The new Eugenic Protection Law passed by the Japanese parliament in 1948 gave legal recognition to the practice of artificial abortions, when performed for the direct or indirect protection of the mother's health.[8]

The purpose of the present paper is

to calculate and to indicate, as far as possible, the incidence of abortions among Jewish women in Israel. For reasons previously mentioned, such rates have a special interest. The main source of our calculations is the most recent publication of the Central Bureau of Statistics on hospitalization statistics [9] as related to data on the population of Israel published [10] or personally communicated by the Central Bureau of Statistics. These data include diagnoses of patients discharged from the recognized hospitals in Israel. This material was differentially analyzed for samples of 50 per cent for 1952, and 25 per cent for 1953. Corresponding adjustments were therefore made in all following figures. The "coverage" of the hospital population in the hospitalization statistics during the above mentioned years was around 80 per cent, so that actually it can be accepted that the number of hospitalized abortions was higher. The main unknown factor of our problem, however, remains the nonhospitalized abortions of all kinds. We have not tried to estimate their number, although it undoubtedly amounts at least to several thousand per year.

The method of hospital registration and hospitalization statistics does not enable a division between spontaneous and induced abortions. It may be assumed that the majority are of the spontaneous type, as artificial abortions are illegal in Israel, apart from those performed to safeguard the mother's health. The present attitude of the medical profession is to limit so far as possible the indications for therapeutic abortion.

Table 2—Rate of Abortions per 10,000 Cases Admitted to Hospitals (Israel, 1949–1953)

Year	Rate
1949	1,019
1950	903
1951	890
1952	784
1953	926

The number of such abortions is therefore not large, and forms only a small fraction of the total. Nonetheless, there may still be a considerable number of "camouflaged" induced abortions in our material.

Generally, abortions take a very prominent place among the diagnoses of the hospitalized population. They account for almost one-tenth of all the patients admitted to hospitals (Table 2).

In three out of the four years, 1950–1953, abortion took first place, being the single most prevalent diagnosis per 10,000 hospitalized patients; in the fourth year abortion was the second most prevalent. The rates are much higher when hospitalized women alone are considered. In 1951, out of every 10,000 women in the 15–44 year age group admitted to hospitals, there were 2,522 abortions, that is, more than one abortion out of every four admissions.

As differential data are available only for 1952 and 1953, we shall confine ourselves to these years in the following analysis.

The total number of abortions registered, according to the continent of the

Table 3—Abortions According to Continent of Birth of Women (Israel, 1952–1953)

Year	Israel	Asia and Africa	Europe and America	Total
1952	1,398	1,594	3,016	6,008
1953	1,576	2,048	3,760	7,384

Table 4—Abortions per Productive Females and per Births, by Continent of Birth (Israel, 1952–1953)

Year	Israel	Asia and Africa	Europe and America	Total
		A. per 1,000 Women Aged 15–49 Years		
1952	17.7	14.1	13.5	14.3
1953	17.3	17.6	17.3	17.3
		B. per 1,000 Births		
1952	274.1	75.3	159.9	133.1
1953	298.6	92.8	220.8	166.4
1952–1953	286.5	84.2	188.8	149.6

patient's birth, is presented in Table 3. The small number of cases where the birthplace is unknown are included in the group of those born in Israel.

There is a difference as to whether the abortions are related to the total female population between the ages of 15–49 years, or to the number of births, conditioned by the difference in the birth rate and fertility rate of these groups. Table 4 compares these two rates.

Whereas the rates per 1,000 women do not show a similarity for the two years there is an obvious similarity in the rates per 1,000 births: Israel-born women take the first place, followed by women born in Europe and America, with those born in Asia and Africa coming last. The differences are very pronounced, the maximum being more than three times as great as the minimum.

In addition to the rates calculated for women according to the continent of their birth, we were able to calculate differential rates for several Oriental countries. Table 5 gives these figures and rates.

The trend of births and abortions was

Table 5—Births and Abortions Among Women Born in Various Oriental Countries (Israel, 1952–1953)

Country	No. of Births		No. of Abortions		Abortions per 1,000 Women (15–44 Years)		Abortions per 1,000 Births	
	1952	1953	1952	1953	1952	1953	1952	1953
Yemen	4,606	4,357	240	220	12.9	11.8	52.1	50.5
Iraq	5,465	6,225	468	600	14.3	18.4	85.6	96.4
Turkey	2,022	1,841	152	168	13.4	15.2	75.2	91.3
Libya	1,950	2,144	134	172	15.4	19.4	68.7	80.2
Morocco, Tunisia, Algeria	3,149	3,381	256	272	21.5	20.9	81.3	80.5

Table 6—Abortion Rates Among Women from Various Countries per Duration of Residence in Israel

Country of Origin	Abortions per 1,000 Women (15–44 Years)		Abortions per 100 Births	
	Veterans	New Immigrants	Veterans	New Immigrants
		1952		
Yemen	19.12	10.76	8.03	4.22
Iraq	28.42	14.07	10.54	8.32
Turkey	14.14	14.07	5.26	8.68
Morocco, Algeria, Tunisia	(48.73)	17.93	5.36	8.59
		1953		
Yemen	17.5	9.6	9.14	3.77
Iraq	37.3	16.8	16.28	8.48
Turkey	25.14	12.62	17.25	7.08
Morocco, Algeria, Tunisia	(39.0)	19.2	(15.87)	7.62

not parallel in all communities. Consequently, the rates changed during the two years and increased in all cases, with the exception of Yemenite women and those from Morocco, Algeria, and Tunisia.

Whereas the abortion rate of Yemenite women is the lowest in the list, that of the North Africans is the highest when considered per 1,000 women. The rate per 1,000 births is also much higher in the North African group than among the Yemenites. The difference between the two sets of rates reflects the differential birth rates of the respective communities. Differences between the rate of abortions per births in the five communities are highly significant according to the K^2 test, P being much less than 0.01.

It is interesting to note that within each community there is a considerable difference between women who are "veterans," that is, they arrived before 1948, and the new immigrants who arrived after 1948. The rates are given in Table 6.

The rates per 1,000 women in reproductive ages are almost twice as high for veterans as for new immigrants. The only exception to this is in the Turkish group of women in 1952, and we have no explanation for this. The picture of the rates per births is different. Here, the rates for new immigrants are only a little lower than for veterans in the case of Iraqis, whereas for Turks and North Africans, the rate for new immigrants is even considerably higher. This holds true for 1952 only, while in 1953, the veterans' rates are much higher in all communities. The explanation lies in the very steep drop in births among the veteran population of the groups concerned. At the same time the number of births among new immigrants did not decrease, and in some cases even increased considerably [11] (Table7).

During the two years there were no

Table 7—Number of Births in Various Communities, According to Duration of Residence in Israel—1952–1953

Country of Origin	Number of Births			
	Veterans		New Immigrants	
	1952	1953	1952	1953
Yemen	1,195	963	3,411	3,394
Iraq	607	516	4,858	5,709
Turkey	685	371	1,337	1,470
Morocco, Algeria, Tunisia	448	126	2,701	3,255

changes in the respective populations. The number of female immigrants in the reproductive ages was only a couple of hundred at most, and only among the North Africans did it reach approximately a thousand. The above variations in the absolute number of births were bound therefore to find expression in a parallel drop in birth rates. At the same time there was an increase in the number of abortions.

This may be considered as further proof of the induced character of part of the abortions.

Conclusions

1. Abortions rank high among the causes of hospitalization in Israel. One out of every four hospitalized women in the reproductive ages was admitted with the diagnosis of abortion.

2. There are pronounced differences in the incidence of abortion among women born in different continents. The highest rate per 1,000 births is found among women born in Israel. The next highest incidence is found in European and American women, and

Table 8—Number of Abortions in Various Communities According to Duration of Residence in Israel

Country of Origin	Number of Abortions			
	Veterans		New Immigrants	
	1952	1953	1952	1953
Yemen	96	88	144	128
Iraq	64	84	404	484
Turkey	36	64	116	104
Morocco, Algeria, Tunisia	24	20	232	248

the lowest in women born in Asia and Africa.

3. The rates of abortion per 1,000 women in the reproductive ages are much higher among the "veterans" (that is, those long resident in Israel), than among the new immigrants. The same is true when rates per 1,000 births are compared.

4. There are also differences in the incidence of abortions according to the country of birth of the women. Four Oriental countries are compared. Yemenite women have the lowest incidence while Iraqis and North Africans have the highest. Turkish women have an incidence between the other groups.

5. Induced abortions (excluding therapeutic abortions) are illegal in Israel, and the majority of the abortions registered in hospitals are reported as being spontaneous. In spite of this, however, analysis shows that a certain proportion may be considered "camouflaged" induced abortions.

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North Carolina Radiation Laboratory

A radiation laboratory for research and for teaching graduate students in sanitary engineering, sanitary science, and sanitary chemistry and biology is being equipped in the Department of Sanitary Engineering of the North Carolina School of Public Health. A grant from the Atomic Energy Commission of some $8,000 is making this equipment possible. Some assistantships and fellowships are available. Information concerning these and the graduate study in this field from Department of Sanitary Engineering, P. O. Box 899, Chapel Hill, N. C.

Health education is an important element in any program aimed at helping older people maintain their health. The basic educational aspects to be considered in developing health programs for older individuals are discussed. Instances of some current activities are cited to show what can be done along such lines.

HEALTH EDUCATION IN SENIOR CITIZENS' PROGRAMS

Bernard Kutner, Ph.D.

THERE IS little doubt that maintenance of sound health stands as a major goal of later life for the vast majority of Americans. With increasing age there is a growing realization that normal activities: gainful employment, family life, recreation, travel, and retirement depend to a large measure on the state of one's health. Illness, whether acute or chronic, depletes financial reserves, reduces personal energy and psychological resources, depresses morale, and dislocates familial relationships. It is not surprising, therefore, that both public and voluntary agencies dealing with older people have devoted much attention to the field of health education. Although most physicians do not regard geriatrics as a distinct specialty concerned with diseases peculiar to older people, they recognize the need to regard the health problems of the aged in a special way. Prevention, medical management, and rehabilitation among aged persons require adaptation of and innovation from procedures employed with younger adults. Outstanding among these problems are the arthritides, cardiovascular disturbances, the consequences of accidental falls, visual and auditory defects, nutritional imbalances and deficiencies, diabetes, peripheral vascular diseases, and emotional problems brought on by the personal disturbances of later life. There is also much documentation to show that at the same time a variety of medical problems begin to confront the older person, he tends with advancing age to take a decreasing interest in medical care. In part, such disinterest may reflect specific negative attitudes toward health and medical facilities, but it may also reflect a general tendency to ignore or disregard the serious physiological and psychological changes that are taking place. In view of these facts, the tasks of health education among the aged are twofold. First, the individual must be made aware of the significance of health changes in the later years, the importance of regular health examinations, the value of following medical advice, and the need for establishing and maintaining health habits consistent with present abilities and capacities. Second, he must be reached with specific and detailed information to bolster his ability to care for himself and to find health resources as needed.

It is well recognized that some older people secure necessary information and engage in those activities which will help them to maintain health at a high level. For such people, special health education programs are largely unnecessary. However, an increasingly large group of older people are today to be found

enrolled in programs of adult education, recreation, leisure-time classes and in clubs variously referred to as "Golden Age" or "Senior Citizens' Clubs." It is in such settings and in others unrelated to older age groups that these people may be made acquainted with the problems of health with which they as individuals may be confronted and with suggested solutions of these problems.

The purpose of this paper is to indicate some forms which an ideal health education program may take, and which are adaptable for use in programs for older people; and to point out certain programs that have already been organized and are currently being carried out in various parts of the country. First, a word of caution. It has clearly been demonstrated in a variety of fields that attempts to induce individuals to take action in some respect are largely doomed to failure if they are based on the premise that sufficient exhortation will provoke the person to take the desired action. Mere exhortation has been found to be largely ineffective when used exclusively to motivate the individual in his own behalf. If exhortation is to succeed, it must be placed in some context meaningful to the individual and centering specifically on his problems. Since many older people do not have a history of regular medical examinations, the need for a preventive check-up at regular intervals may be lost on an older person if he is simply urged to go see a doctor at least once a year. Such urging does not make it clear why a physician should be consulted and what benefits are to be gained by so doing. Nor is it clear what harm may come if the individual does not see his physician regularly.

It is perhaps fortunate that when older people congregate in programs designed for their specific use, there is a considerable tendency for each person to be influenced by the desires and activities of the others. Thus, one element in a successful health education campaign in a senior citizens' program would be to induce groups of older people related by age, interests, and membership to establish regular health habits. Mass education becomes possible through the use of health education films, talks by expert speakers in particular fields of medicine, nursing, and public health, the use of pamphlets and magazines on various health subjects, demonstrations of correct technics for the preparation of adequate diets, care of the teeth, proper foot care, adequate exercise for older people, and so forth. The basic points to be kept in mind are that programs of health education for the aged must be made specific to meet individual needs and that explanations must be given in the style and language which is most likely to be comprehended and used. The second element in a program of health education would involve bringing groups of older persons to various centers in the community in which they live to see the types of health programs available for people like themselves. Since many aged persons shy away from clinics and other health establishments on the grounds that they dislike the waiting, the atmosphere, and the treatment received, such establishments could be rendered more acceptable by visiting them and having their services demonstrated at a time when the individual is not urgently in need of them. In this way, the older person will develop some sense of closeness to the service he seeks should the need arise. A third element in a health education program for the aged is to keep the individual apprised of ongoing health education activities not necessarily sponsored by the center to which the individual is attached. For example, specific radio or television programs, books, pamphlets, and speakers addressing other organizations or public meetings could be brought to the individual's attention following which he may be encouraged to listen or watch. A constant surveil-

lance of health programs in the community, for the benefit of members of older age clubs will serve as an important supplement to the health education activities carried on within the center itself. A fourth essential element is the establishment of an up-to-date directory of health services available to older people. Frequently, health problems go unmet by the aged person because of lack of knowledge concerning resources within his means which he might use. A responsible senior citizens' program should maintain a reference to such resources, and should have at least one responsible individual who could make an appropriate referral to a health agency. Such an information service will help older people to carry out the health education measures advocated in the educational aspects of the program. The fifth aspect of health education in senior citizens' programs concerns mental health. Not only can such programs take up the emotional problems of the later years as a specific topic for discussion and thought, but at the same time, the very activities which the center creates to engage and interest older people are themselves aspects of the mental health education program. Films, books, pamphlets, and discussion groups on the emotional problems of aging are increasing in great number. They should be available, of course, to members of senior citizens' programs. But, perhaps more important, are the programs themselves.

Some of the solutions to the problems of later life may be found in the appropriate use of leisure time. Adult education and recreational activities that are functional substitute for employment or housekeeping may be regarded as basic elements in programs to maintain the mental health of older people. Of the greatest significance is the establishment of programs in which the individual participates actively, instead of merely occupying his time with meaningless leisure pursuits. Mental health education cannot be divorced from the programs in which the individual aged person is engaged. For some this may mean remunerative workshop productions, for others it may mean the enjoyment of some hobby or some creative activity such as sculpturing or painting or writing, while for still others the activity may be contributing to some community cause, such as rolling bandages for a local hospital or the friendly visiting of sick members, or reading to or writing letters for patients in a local hospital or nursing home.

Keeping the various points of the program in mind, we now turn to an examination of some of the ongoing activities in centers for older people to illustrate the ways in which various health education technics are being employed. The examples are drawn from programs throughout the country and are used merely as instances of the technics currently in practice.

Ingenuity in the development of creative and useful community activities may be seen in the Marin County, Calif., Senior Association which purchases and prepares gifts to be distributed at hospitals by Red Cross Grey Ladies at Christmas time. Another instance is that of the New Hampshire Golden Agers who have been assisting the New Hampshire Mental Hygiene and Child Guidance Clinic by sending birthday cards and letters to children under the care of the clinic.

In two health centers of the Amalgamated Clothing Workers of America, in Philadephia and in New York, recreation programs have been established. Both programs stress the relationship between leisure-time activities, social adjustment, and the maintenance of health.

Another type of community service conducted by the Akron, Ohio, Golden Age Club consists of the preparation of medical records for microfilming or for

mailing in behalf of the Akron General Hospital. A unique experiment in maintaining the older person's gainful contribution to society is the organization, Senior Achievement Incorporated, in which a small plant in Chicago employs about 25 workers in the production of such items as wooden footstools, cradles, and sandals as well as clerical and drafting jobs contracted to it by larger firms. The workers are employed not more than six hours a day and their income does not endanger their receipt of Social Security benefits. Another type of outlet for handmade goods is a unit provided by the Women's Educational and Industrial Union of Boston which handles products made by members of Golden Age Clubs. The older workers receive 75 per cent of the sales price. Another such program is a unit of Sunset Industries of Bangor, Maine, which employs about twenty persons in the older age group.

These programs are all based upon the notion that physical well-being and sound mental health are enhanced by activities which offer an opportunity for the individual to contribute in some meaningful way to the community at large or which provide him with a source of additional income.

Some agencies of government have prepared comprehensive programs of health education for use with organized groups. For example, the Minnesota State Department of Health at one time prepared a group of discussion units on matters of health for organizations of senior citizens and for the use of persons employed in institutional facilities. Under the direction of the Minnesota Department of Health a medical specialist would collaborate with a health educator in developing discussion units. Some of these would be in the fields of nutrition, health maintenance, safety, mental health and the role of the older person in the community. The purpose of the Minnesota program was designed to reinforce or help the older person to recognize the unity of his life pattern in terms of his own personal needs, his familial relations, his group, and his community activities. The discussion plans called for a group leader to organize the unit. Discussion guides were to be mailed from the Minnesota Department of Health and professional assistance provided if necessary.

Programs under the sponsorship of a state department of health, such as the one just described, could easily be duplicated by any health or welfare agency, whether governmental or voluntary. It seems clear that planned programs of health education for the aged can best be carried on within the context of local senior citizens' organizations whether or not described by this name. Some clubs of this kind may be found operating in the structure of political groups, church organizations, recreation centers, and fraternal and social clubs. Local health educators who take the initiative in bringing health education activities to the attention of the leadership of these organizations will be doing them a distinct service by offering suggestions and materials for conducting such programs. Since sound health in old age depends to such a considerable degree upon proper nutrition, it is perhaps in this area that the health educator may best begin his work. It was with these ideas in mind that the Nutrition Education Project sponsored by the Sirovich Center in New York City was developed. The project consisted of a series of lectures and discussions following a nutrition and medical survey of a sample of the center's membership. In one program, the Ithaca, N. Y., Senior Citizens' Center, a Health and Happiness Class is held weekly, and a workshop is maintained so that older people can bring and sell handiwork. Principles of good nutrition are taught by means of lunches prepared by members of the center. The center has also

produced a series of booklets dealing with nutrition. Some of the titles are "Senior Citizens Cook Alone and Like It," "Senior Citizens, Be Kind to Your Body," which includes an exercise regime for older people, "Eating for Health," and "You Can Make Cornell Formula Bread."

Finally, we should like to point out that leadership in the field of health education for the aged has been advanced by the activities of a wide variety of agencies conducting programs of education not for the aged themselves, but for individuals responsible for dealing with the aged. We may point to such programs, for example, as those conducted by the Pasadena-Altadena Committee on Aging representing both public and private agencies in the Pasadena, Calif., area; the Greater Muskegon Geriatric Council, which sponsored a Health and Happiness After Forty Public Health Forum; the Adult Division of the Sacramento Junior College, which sponsored a series of six lectures on Mental Health in the Later Years jointly with the Committee on Problems of the Aging of the Community Welfare Council of Greater Sacramento; the Sacramento Society for Medical Improvement and the Sacramento County Chapter of the Mental Health Society of Northern California; the Committee on Services to Older People of Columbus, Ohio; as well as numerous other local state and national organizations. Health education materials provided by or deriving from conferences, lectures, discussions, and films are to be found in a wide variety of sources. An excellent television series, kinescopes of which are available, has been prepared under the direction of Dr. Wilma Donahue, the chairman of the Division of Gerontology at the University of Michigan. Such items as meeting the cost of medical care and health maintenance are among the 15 topics discussed. Health information materials may be secured from such varied organizations as the American Public Welfare Association, the Department of Health, Education, and Welfare of the federal government, various life insurance firms, the excellent bulletin "Adding Life to Years" produced by the Institute of Gerontology of the State University of Iowa, and a variety of books and pamphlets written in easily understood language. Some of the better ones include, Dr. Ernst Boas's "Add Life to Your Years," Dr. Clarence William Leib's, "Outwitting Your Years," Julietta K. Arthur's, "How to Help Older People," and Dr. Kenneth Walker's, "Living Your Later Years."

Maintaining the older person in good health is the responsibility, not merely of the individual himself, but looked at from a public health point of view, of both governmental and voluntary agencies as well. It is my hope that some of the foregoing details have provided an indication of the vast scale on which activity is progressing throughout the country and gaining momentum each year. Health education which is so important to the well-being of our older population requires that both state and voluntary agencies concentrate some of their efforts in organizations where older people are to be found. Since senior citizens' groups are growing in popularity, special health education programs designed for these clubs should be pressed as a basic element in a general program of health education in old age. They offer an avenue through which information and advice on health matters may be made available to older people who otherwise may not hear of or respond to the health education message.

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Journal of Public Health

EDITORIALS

Ten Years of International Health Progress

On April 7, 1948, the twenty-sixth member government of the United Nations ratified the constitution of the World Health Organization and brought it into being. Ten years have now elapsed and it is possible to see in perspective some of its achievements.

The World Health Organization is the first world-wide international health agency not limited to a particular health field and it has raised international health cooperation to the highest level yet achieved. However, as with so many other important developments in human affairs, the idea of international cooperation in health matters is not entirely new. It has grown out of a broadening realization that in a world which for more than a hundred years has been contracting because of technological evolution and increasingly complex economic and political interdependence among nations, the presence of health problems in one area constituted a continuing danger for many others.

At first, coordination of quarantine was the most urgent problem, and in 1902 the Pan American Sanitary Bureau was created to deal with it. Five years later, in 1907, an agreement was signed at Rome establishing the Office Internationale d'Hygiène Publique; its chief function was to gather and distribute epidemiological information, especially with regard to plague, cholera, and other communicable diseases. The next important step in the development of international health work was taken in 1923 with the creation of the health section of the League of Nations. At this time, it was already becoming apparent that there were other problems in addition to quarantine and the control of communicable disease that called for international action. Among the most valuable contributions of this body were its studies in such fields as rural hygiene, housing, health centers, health insurance, the health of the school child, and physical education. In general, it endeavored to develop the concept of health promotion.

In the light of past experience, and with the advantage of being an autonomous agency, the World Health Organization has been able to approach the tasks of international health on an even broader basis than its predecessors. The principle of mutual aid in dealing with health and social problems was contemplated by the Charter of the United Nations and the World Health Organization has endeavored to make it a reality. Furthermore, it has recognized that health is "one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition." Based on these principles, the World Health Organization has become the world-wide official coordinating

agency in the field of international health. Cooperating with regional, national, and local health organizations, notable advances have been made toward the goal of "the highest possible level of health." Marked improvements have been achieved in nutrition, sanitation, communicable disease control, exchange of health information, and in many other fields. Most significant of all, however, has been the attention given to technical assistance and the emphasis placed on the positive advancement of health.

What the long-term outcome of all this will be cannot yet be fully appreciated. The field of international cooperation for the promotion of health is still comparatively new. Nonetheless, it is quite clear that the basic philosophy and objectives are shared by American public health workers with their colleagues all over the world. We have been most active in the development of international health cooperation and it is important that we continue along these lines. American public health has a responsibility in the world which requires active participation in the World Health Organization. The past decade has given ample evidence of the seminal value and importance of this agency. We salute its tenth anniversary and anticipate its fruitful years that lie ahead.

Hepatitis

ALTHOUGH HEPATITIS was recognized as a clinical entity for many years, its nature was not clearly understood. Many studies of the disease have been made since World War II and much has been learned about its cause and transmission. Two forms are known, infectious hepatitis and serum hepatitis, but their clinical pictures are so alike that they can be distinguished only with difficulty. The causative agents of both are viruses but it is not clear whether they are different viruses or whether one is a variant of the other. It is known that an attack of one form of hepatitis protects against a recurrence of that form, but not against an attack of the other. It is also known that gamma globulin is a prophylactic agent against infectious hepatitis but not against serum hepatitis.

The virus of infectious hepatitis is excreted in the stools and may, therefore, be transmitted like typhoid. It is, however, also present in the blood stream, usually only during the acute stage of the disease. The virus of serum hepatitis is not found in the intestinal tract. It has been found only in the blood stream. What is of particular importance is that certain persons carry the virus in their blood for many years. They may not even give a history of an acute attack and they cannot be identified by laboratory test. Liver function tests to screen carriers of hepatitis are of questionable value. The virus has not been grown in the test tube nor in eggs nor in laboratory animals.

Hepatitis can be transmitted by transfusion of whole blood, plasma, or serum from an infected to a susceptible person or by the use of contaminated needles, syringes or blood-letting instruments which have been insufficiently sterilized.

There are some general measures that can be taken to prevent spread of hepatitis:

1. Transfusions should be given only when there are definite indications. Donors should be screened carefully and rejected when there is a history of jaundice or of other symptoms of hepatitis.

2. The use of plasma, especially from large pools, should be avoided. Neither irradiation nor storage at room temperature for several months are absolutely reliable as inactivators of the virus. There are safe substitutes for plasma on the market. Processed albumin and gamma globulin do not transmit hepatitis, but the other blood fractions may do so.

3. Syringes, needles, blood-letting in-

struments and connecting tubing and glassware should be washed carefully to remove all foreign matter and then sterilized. There is no information on the length of time necessary to sterilize by any method. Most viruses, fungi and vegetative forms of pathogenic bacteria are readily destroyed by boiling for a few minutes. The virus of hepatitis is, however, a very resistant organism. The Expert Committee on Hepatitis of WHO, in Technical Report Series No. 62, 1953, recommends "boiling in water for at least 10 minutes, steam under raised pressure (autoclave), and dry heat sterilization (hot-air oven). If the temperature can be properly controlled in all parts of the hot-air oven, treatment at 170° C. for half an hour is adequate, otherwise treatment at 180° C. for one hour is recommended. Lancets and other instruments used for capillary-blood sampling and scarification may be sterilized in an open flame after washing in cold water." Autoclaving should be continued for at least 10 minutes from the time the temperature reaches 121.5° C. (250° F.) at a pressure of 15 pounds.

(The Journal is indebted to Morris Greenberg, M.D., director, Bureau of Preventable Diseases, Department of Health, New York, N. Y., for assistance in the preparation of this editorial.)

Today's VD Problems

MANY OF the reported evaluations of current VD statistics have led to erroneous impressions concerning the problem of venereal disease at present, because most of the available data relate to the nation as a whole, and do not reflect the problems of specific areas. Even the morbidity rates for a state or a large city may conceal considerably higher rates in smaller local areas. This has been confirmed by an analysis which considers individually all the states, as well as 95 large cities and areas within them. This analysis is based on a questionnaire returned by 48 states, three territories, 95 out of 107 cities in the United States with a population of over 100,000 and the District of Columbia. The results are presented in the fifth annual Joint Statement, "Today's VD Control Problem," recently released by the Association of State and Territorial Health Officers, the American Venereal Disease Association, and the American Social Hygiene Association.

Although there were rises in the total number of reported cases of syphilis in all stages in from nine to 16 states annually since before 1953, this was not reflected in data for the United States as a whole until 1956 and 1957; 135,542 cases of syphilis were reported in 1957, as compared with 126,219 in 1956 and 102,075 in 1955. The greatest change in the number of reported cases of syphilis during 1957 is the increase of 10,663 cases of late and late latent syphilis, bringing the total to 100,514 cases, with a rate of 60.83 per 100,000 population. This is the highest number of late and late latent cases reported in the United States since 1952. Twenty-five states showed increases in the rate of reported late and late latent syphilis for 1957. Every case of late or late latent syphilis that is diagnosed represents case finding more than four years after the primary and secondary stages and this means a failure of case finding in the past. This is also true of early latent syphilis, which represents failures within the preceding four years to find syphilis in the infectious period.

In 1957, primary and secondary syphilis declined slightly in the United States as a whole, but rose in 25 cities and 20 states. Early latent syphilis showed a very slight rise in the United States as a whole, but there was an increase in 19 cities and 21 states.

Since 1953, the number of states reporting increases in gonorrhea over previous years has varied from 15 to 27

annually. In 1957, 18 states showed increases over 1956 in the number of reported cases. Despite this, the total number (216,476 cases) in the United States as a whole declined by 16,476 cases.

Health officials agree that fluctuations in the number of reported cases are due to fluctuations in the use of case-finding measures and the extent to which state and local health departments use known tools of control. An increase in case-finding activity almost invariably produces more cases discovered, more cases reported and, therefore, increasing rates of reported cases.

The largest problem encountered by the health officers is a shortage of personnel to maintain adequate control of the situation. Thirty-two states, one territory, and nine cities report inadequate coverage of 137 areas in which 20 million persons reside. Shortages of specific professional personnel were reported by 28 states, two territories and 12 cities. In order to maintain surveillance and to achieve adequate control coverage, they indicated the additional immediate need of 35 trained physicians, 53 trained nurses, 87 contact investigators, six laboratory technicians, 15 record analysts, and 27 health educators. Furthermore, 16 states, one territory and five cities declared that they do not have diagnostic and treatment facilities sufficient to meet current needs. Twenty-three states and 37 cities stated that reporting was not sufficiently complete to provide a reliable index of actual incidence and prevalence.

Twenty states, one territory and 17 cities report outbreaks of venereal disease in 1957. An outbreak is a cluster of cases which, by epidemiologic investigation, have a common source and occur within a relatively short period of time. The number of persons involved in these outbreaks ranged from 45 to 326 persons; of these, from nine to 72 were newly discovered cases of infectious syphilis. Fourteen states and 19 cities report a rise in venereal disease among the 11 to 19 age group, the increases ranging from 3 per cent to 30 per cent over the previous year.

In 1932, Dr. Thomas Parran, who launched America's greatest offensive against venereal disease, stated, "Syphilis can never be controlled while more than one-half of the cases are not recognized for more than one year after onset." For the past four years, primary and secondary syphilis have been reported at an average of 6.5 thousand cases per year. Over the same period of time the number of reported cases of early latent syphilis (under four years duration) has averaged 21.7 thousand cases per year. Thus, for every case of primary and secondary syphilis found during this four-year period, at least three similar cases were not found. These were discovered after they had passed through the infectious period. This means not only that more cases were missed than were found, but that those missed were potential hazards to others during the primary and secondary stages and possible infectious relapse periods. In 1948, the ratio of early latent syphilis to primary and secondary syphilis was a little over 1:1. In 1948, the ratio of total syphilis found to primary and secondary syphilis was 4:1. In 1957, the ratio was 20:1. Every case of latent (early or late) and late syphilis represents a failure of previous case finding.

No one will deny that much progress has been made in venereal disease control, but basic epidemiologic facts from various parts of the United States reveal that the problem is still one of considerable public health importance and may become more important if vigilance is relaxed as a result of overoptimism.

The etiologic agents of gonorrhea and syphilis are available in every state. There is no immunization, nor are there nonhuman vectors to control through

environmental sanitation. Furthermore, promiscuity is common, particularly among certain population groups. Constant active surveillance is therefore essential for prevention, control, and reduction to the lowest attainable level.

The Record of a Remarkable Woman

BEGINNING IN 1893 with the opening of the Henry Street District Nursing Service, Lillian D. Wald entered upon a long and fruitful career of pioneering and service in nursing, public health, and social welfare. Sixty-five years later, on March 11, 1958, the Visiting Nurse Service of New York fittingly commemorated her 91st birthday by presenting to the New York Public Library the Lillian D. Wald Papers, a collection of more than 30,000 letters, as well as several hundred public addresses and professional lectures. This gift has a twofold significance: not only do these papers give a picture of a great woman who lived an active, well-rounded life, but they are also an important source for an understanding of a crucial, formative period of American public health. Lillian Wald was a leading member of the dedicated, militant group of men and women who at the end of the nineteenth century and during the first quarter of the present century undertook to curb some of the worst excesses of industrialism, and prepared the way for the welfare and health legislation we take for granted today.

Her letters reflect Miss Wald's concern for the social evils she encountered —exploitation of children, shocking living and working conditions, lack of recreational facilities—and her activities in awakening the concience of New York and the United States to face up to such problems. In 1903, she suggested a federal Children's Bureau, which came into being nine years later. One year earlier Miss Wald loaned one of her best qualified Henry Street nurses, Lina Rogers, to see what could be done about the health conditions of children in a New York school. This demonstration led to the establishment of the first municipally supported school nursing service. She was similarly instrumental in providing visiting nurse care to policy holders of life insurance companies, beginning in 1909 with the Metropolitan Life Insurance Company.

Through her wide acquaintance with leaders in politics, health, nursing, social work, and other areas of community life, Lillian D. Wald was able to make her influence felt on behalf of many causes. Most significant, however, in this record of a remarkable woman is the strength of the personality which her achievements made possible, the achievements to which she gave her life.

LETTER TO THE EDITOR

TO THE EDITOR:

We submit the following to the membership of the American Public Health Association for consideration and comment.

It is surprising to note, that in the last decade while the incidence of enteric infections due to Salmonella typhosa has decreased, the total number of Samonella infections has increased. In the United States, there were a total of 4,026 cases, of which, 3,075 were due to S. typhosa in 1947, while in 1955, 7,151 cases were reported, of which,

1,704 were traced to S. typhosa. While these figures indicate a slight rise in total number of cases, they also show that species of Salmonella, other than S. typhosa, are establishing themselves as the major source of infection. Of this group, S. typhimurium is of considerable epidemiological interest. Saphra (J. Infect. Dis. 86:74, 1950) reported that 1,155 of 3,279 cultures from human sources identified at the New York Salmonella Center, between 1939 and 1949, were S. typhimurium. Hughes (J. Roy. Soc. Health 77:1, 1957) recently reported that 72 per cent of the 3,508 cases referred to the Portsmouth (England) Public Health Laboratory Service were caused by S. typhimurium. Wolff (J. Am. Vet. A. 111:474, 1947) found that of the 800 cases of salmonellosis reported in Michigan, only 200 were found to be typhoid fever and the remaining 600 were caused by S. typhimurium, S. panama, and S. paratyphi B. Recently, Cooper, and Wilson (M. J. Australia 1:829, 1957) reported that, of the Salmonella species isolated from human sources in Victoria, Australia, over the past six years, almost 80 per cent of the 1,250 strains were found to be S. typhimurium.

According to Edwards and Bruner (J. Infect. Dis. 72:58, 1943) and also Ramon and Aleppo (Arch. de pediat. d. Uruguay 21:788, 1950) S. typhimurium is the most commonly isolated Salmonella from human sources. In addition to this, Haroff (Dissertation, University of Copenhagen, 1948), in Copenhagen, found that 78 per cent of the gastroenteritis cases, caused by S. typhimurium, gave a positive Widal test. This fact suggests that past infections diagnosed as typhoid fever could have been caused by S. typhimurium. While the typhoid organism, being a human pathogen, has been controlled by proper sanitation and vaccines, S. typhimurium presents a greater problem; in that it is primarily an animal pathogen whose reservoir cannot be eliminated very easily. This can be demonstrated by citing Neely and Nelson's work (Month. Bull. M. Research Council 10:96, 1951), in which they traced the cause of many cases of salmonellosis to the consumption of infected duck eggs, while this disease in Australia was found in sheep and wild birds (Watts and Wall, Australian Vet. J. 28:165, 1952). Edwards (World Poultry Congr. & Expos. Proc. 7:271, 1939), reported that the greatest reservoir of paratyphoid infections in the United States is found in fowls. In these studies he also reported that of the 223 cultures which were studied antigenically, 176 were found to be S. typhimurium. Since the reservoirs of this organism cannot be eliminated or controlled as was S. typhosa, protection in the form of a vaccine should be considered at the present time in order to reduce the incidence of S. typhimurium infections. It would seem logical to either add S. typhimurium to the organisms contained in the polyvalent vaccine, or substitute this strain for S. paratyphi (Para A.) which at present is not much of a problem in this country. By doing this, some protection would be offered against this growing public health hazard.

The triple vaccine now in use was designed for the needs of the 1920's. We feel that this vaccine should be re-evaluated on the basis of present-day experience. This is the time for thought.

NEIL L. NORCROSS, PH.D.
R. B. READ, JR., PH.D.
WARREN LITSKY, PH.D., F.A.P.H.A.
Department of Bacteriology and Public Health, University of Massachusetts, Amherst, Mass.

February 25, 1958

COMMITTEE ON AFFILIATED SOCIETIES AND REGIONAL BRANCHES

THE COMMITTEE on Affiliated Societies and Branches was established in accordance with the Association's Task Force recommendations and as authorized by the Governing Council at the 1956 Annual Meeting. The committee membership was designated by the Executive Board in February, 1957.

In essence, the program of this committee is a continuation of the activities initiated by an ad hoc committee appointed early in 1956 to advise the Executive Board on ways and means of strengthening Affiliated Societies and Branches. That committee held two meetings and submitted reports to the Executive Board.

Upon appointment of the present Standing Committee each member individually immediately went to work reviewing past recommendations of the previous ad hoc group and accumulating further information through discussions with representatives of Affiliated Societies in their respective areas. Then on September 16 the committee held its initial meeting in New York. Much of the day was devoted to a review of the previous ad hoc committee recommendations and progress toward their implementation. There was consideration given to several additional areas of possible future interest of the committee and to some immediate objectives.

The committee gave further consideration to the operational interrelationship between the APHA and the Affiliated Societies. One of the recommendations of the ad hoc committee had been that a national meeting or workshop of secretaries of Affiliated Societies be called to consider housekeeping and operational matters. This had not been possible of accomplishment but as a beginning in this direction some regional workshops have been held, particularly under the auspices of the Southern Branch and of the Western Branch. The committee heard reports of these activities and urged their continuance as a mechanism of bringing the workers in Affiliated Societies together to consider common problems and exchange ideas on their solutions.

In furtherance of this program the committee recommended that there be a breakfast meeting of representatives of Affiliated Societies at this Annual Meeting at which time APHA-Affiliated Society and Branch relationships could be specifically considered. Such a meeting will be held Thursday morning.

The following are the highlights of other developments during the past year in the areas of interest to this committee.

Most Affiliated Societies now have a minimum of a three-year term of office for secretaries in order better to insure continuity of relationship with the APHA.

Some 35 Affiliated Societies and Branches have been visited by APHA staff representatives during the past year.

Increasing interest is developing among Affiliated Societies in taking the initiative in studying how relationships with the APHA may be strengthened. In several instances committees have been appointed for this specific purpose.

Plans are going forward for the development of full-time staff in the APHA office to improve the staff services to the Affiliated Societies and Branches.

There has been a marked improvement in the interchange of information, publications and reports between the Affiliated Societies and Branches.

A plan has been initiated by your new Standing Committee to study func-

tional and operational roles of the Affiliated Societies and Branches as related to those of the APHA.

There is now a designated section in the Journal for news of Affiliated Societies and Branches. During 1956 there were 17 pages used for this purpose and 34 pages through the September, 1957, issue of the Journal.

Further study is under way by your committee on the relationship to APHA of those members of Affiliated Societies and Branches who are not members of the APHA. A referee to the committee has been designated to initiate the study of this matter.

A referee has also been designated to study a proposed questionnaire aimed at uncovering factors influencing individual membership in Affiliated Societies, Branches and the APHA.

Further consideration is being given to the question of cancellation of the practice of rebates from the APHA to Affiliated Societies and reactions of Affiliated Societies to this suggestion are being determined.

Possible approaches are being studied to single billing for Affiliated Society, Branch, and APHA membership.

The wishes of Affiliated Societies with reference to the provision of traveling teams of experts for their annual meetings are being determined.

The above items are not all-inclusive but are noted as an indication of the areas being considered by your new Standing Committee on Affiliated Societies and Branches. Of all committees in the Association this one perhaps is more dependent upon support and help from the Association membership than any other. We solicit your participation through your local affiliates and your suggestions either to your regional representatives on the committee or to your chairman.

MALCOLM H. MERRILL, M.D.
State Department of Public Health, Berkeley, Calif., Chairman

Report of the chairman of the committee to the Governing Council, November 10, 1957, at the Eighty-Fifth Annual Meeting in Cleveland, Ohio.

Journals Wanted

The Association has received several requests for the May, June, July, September, and November, 1957, Journals from persons who bind the magazines. These persons and the Association would be grateful if members having no use for these particular issues would make them available to others. Such generosity will be much appreciated. The mazagines should be sent to the Association office at 1790 Broadway, New York 19, N. Y.

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

THE INITIAL activities and efforts of the Committee on Public Policy and Legislation have been directed toward the drafting of procedural routines to implement the duties specifically charged to the committee by the Task Force Report. These charges were specifically as follows:

1. Systematize its internal machinery to expedite adoption by the Association, through democratic means, of an official position on the principles relative to matters of public policy.
2. Keep its membership constantly informed of all current legislative developments.
3. Establish machinery necessary to bring the influence of the Association to bear upon the matter in question. This requires a Standing Committee on Public Policy and Legislation. The committee must be adequately staffed and financed, with sufficient flexibility of discretion, within broad limits of Executive Board action, to take specific action as indicated.

The committee is attempting to transform these target objectives into tangible and workable procedures by: first, studying methods by which policies on operational and legislative matters can be adopted for practical use within the framework of the Association; second, procedures whereby action can be secured to effectively execute these policy matters, especially as they pertain to matters of legislation; and third, procedures by which the membership may be kept informed. Two objects are being kept in mind by the committee in connection with this third phase: (a) primarily for purely information purposes to the membership, and (b) to stimulate the membership, especially the various state associations to action.

Typical of the problems and questions being studied by the committee are those relating, for example, to the development of so-called blueprints of the areas of public policy in which the Association should have an official position and the need for a statement of principles on which policy or position is based; all with the recognition that no single pattern in the development of these becomes apparent and the need for the consideration and integration of the views of the committee with other special committees, the Executive Board, the Governing Council, and, of basic importance, representative views from the membership. Procedural plans in the handling of national and state legislation of various national organizations are being studied by the committee to profit by their experiences.

As the committee actively progresses with its assignment, its difficulties and problems often complicated by the knowledge that the Association will often be "breaking new ground" are, however, offset by the realization that much of the Association's future effectiveness and growth are dependent upon many of the questions involved in the activities of this committee. Likewise, the logic and validation of the Task Force Report become increasingly evident that public health can have no real direction nor can its future be charted except within a practical framework of public policy and that the American Public Health Association is the outstanding instrument of national scope that is in a position to best serve as spokesman for public health workers on issues involving national health policy. In winding its way through the often maze of seemingly desirable procedures, the committee is encouraged and spurred on in its activities by realizing that the Association cannot remain aloof from its obligation of national health, and that it must assume an active and aggressive role in the

field of national public health policy, particularly in respect to legislation, both of its own initiation and that suggested by others.

In considering these procedural activities necessary to implement the objectives of the Task Force Report, the committee fully appreciates the achievements, past progress, and the strength and the weaknesses of the Association in the past. However, your committee fully appreciates that the Association cannot defend a nonprogressive and nonproductive program either from the technical or administrative standpoint nor elevate the status of our profession by the mere pointing of a finger at the weak links in our professional organization, neither can we rest on past laurels —a record of past achievements is not enough. The committee realizes that the Association cannot just look back to great technical yesterdays—but we must look forward to great technical and administrative tomorrows. In the words of Justice Holmes "We must sail—sometimes with the wind, sometimes against it—but we must sail and not drift or be at anchor."

It is the hope and expectation of the Committee on Public Policy and Legislation to submit in its report procedures that will chart the course for the future of the Association in these extremely important matters of public policy and legislation.

CLARENCE W. KLASSEN
Chief Sanitary Engineer, Division of Sanitary Engineering, State Department of Public Health, Springfield, Ill., Chairman

Report of the chairman of the committee to the Governing Council, November 10, 1957, at the Eighty-Fifth Annual Meeting in Cleveland, Ohio.

Mental Hospital Population Down

The second year of a "turning point" is indicated in figures of patients in mental hospitals recently released by the Joint Information Service of the American Psychiatric Association and the National Association for Mental Health. For a quarter of a century before 1956 there had been an upward trend in mental hospital populations. A slight downward trend first found in 1956 has been continued in 1957. This in spite of the fact that admissions continued to rise during both years.

The figures indicate a 1957 increase in hospital personnel and larger expenditures for care and treatment, not unrelated, NAMH thinks, to the decrease in total hospital population.

CREDIT LINES

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Jaycee Community Health Programs

The Jaycee Community Health Program has graduated, as it were, from Jaycee Community Health Week of a few years ago. The trial run, in which the National Health Council and many of its member agencies cooperated, pointed the way to a more continuous effort and to more variety to meet varying local conditions.

After a 1956 of gestation in which there was no Jaycee Community Health Week, the Chamber authorized a Community Health Program as a Class I project for 1957–1958. Again, the National Health Council cooperated. It prepared for distribution a series of 10 "Heads Up for Health Leaflets." Each leaflet describes some community program which the Jaycees might carry on. For each program there is a section on background facts, on how to find out what needs to be done that Jaycees might do, a description of a similar program in some other community, and suggestions of other ways such a program might be carried out.

The 10 suggested programs are Salk vaccine program, health fair, better sight for children, better hearing for children, poison control, adventures in living for older people, help for handicapped children, recreation for mental hospital patients, health forums, and directory of health services. The slogan for the program, "Heads Up for Health," is illustrated with a poster display, copies of which are being provided by the Health and Welfare Division of the Metropolitan Life Insurance Company.

This is an interesting experiment in giving a group of enterprising young men an early experience in working together with many community agencies and in thinking through what cooperation means. Whatever success it has will mean much to health planning of the community and should develop informed volunteers and board members for the future. The experiment will be watched with interest.

Medicine in Its Historical Setting

"A History of Medicine in Pictures" is a recently undertaken project of Parke, Davis & Company. This is a series of original oil paintings and stories planned to memorialize highlights in the history of medicine from antiquity to the present day. About 40 pictures are planned. They are 9" x 12", in high-color and accompanied by a page of text. The first volume of six pictures is now out, dealing with Medicine in Ancient Egypt, The Code of Hammurabi, Trephining in Ancient Peru, Primitive Medicine Old as Man, The Temples and Asclepius, and Suśruta, Surgeon of Old India. These were preprinted in 1957 issues of "Therapeutic Notes," a Parke-Davis journal published for the medical profession. Future paintings will also be prepublished in this Journal.

No information as to distribution. Parke-Davis & Company, Detroit 32, Mich.

New Preventive Medicine Bulletin

"News Letter of the American College of Preventive Medicine" began publication in 1956 "to appear several times a year at somewhat irregular intervals." It is further announced that "its appearance and its growth will have a high degree of correlation with the amount

of news material with which the editor is supplied."

The News Letter includes the roster of new members and changes of address for members as a help to members in keeping the membership directory up to date. The February, 1958, issue was the sixth. Here are reported the current officers, as well as the first annual lecture in preventive medicine of the college. On "Health and Safety in Modern Transportation: A New Challenge to Preventive Medicine," the lecture was given by Professor Ross A. McFarland, of the Harvard School of Public Health in Cleveland on November 12, during the 85th Annual Meeting of the American Public Health Association.

V. A. Van Volkenburgh, M.D., assistant state health commissioner of New York, is president. Editor of the News Letter is Henry R. O'Brien, director of professional training, Pennsylvania State Health Department. President-elect is Colonel Louis C. Kossuth, USAF (MC), Deputy Command Surgeon, Air Defense Command.

Methods of Rabies Diagnosis

"Rabies—Methods in Laboratory Diagnosis," by Ernest S. Tierkel, V.M.D., and Helen O. Neff of the Communicable Disease Center, was prepared as a practical guide for laboratory personnel, health workers, and veterinarians actively concerned with the diagnosis of rabies. A section, devoted to proper precautions to be observed in sending heads to the laboratory, is written so that it is useful for workers with lesser training. The laboratory technics described have been selected because of their simplicity, dependability, and economy. The authors believe that "When employed with skill, the procedure should give uniformly accurate and reproducible results." The over-all problem of rabies and research in laboratory work for the identification of rabies is not discussed in this report. Public Health Service publication No. 568, Gov. Ptg. Office, Washington 25, D. C.; 25 cents.

Doggerel Has Its Uses

The Citizens' Committee for Children of New York City uses the light touch in its campaign to fluoridate the public water supply in behalf of the city's children.

Ode to Flora Dation

Little girls in pretty dresses
If they have no teeth are messes.
They must dine off pap and custard.
Which could make them maladjustard.
Help their chewing and their biting
Take your pen and do some writing;
Help bring fluoridation closer,
Write to Wagner * and Gerosa,*
Write yourself and get five others,
Get your uncles, sisters, brothers.
Tell the Mayor that we all vow
We want fluoridation NOW!

* Mayor and Comptroller, respectively.

The Economy of Medical Research

"Does Medical Research Repay the American People?" is out in its 1957 dress—bigger, handsomer, and more compelling than its first appearance in 1955. The burden of its message is "Won't you urge more funds for research from voluntary organizations, city, state, and the federal governments whenever you have the opportunity?"

The charts and figures are graphic illustrations of the truth that "medical research has paid big dividends in those areas where there have been breakthroughs." But answers are needed for victory over other major killing and crippling diseases—arteriosclerosis, cancer, mental illness, neurological and blinding eye diseases, arthritis, and the rheumatic and metabolic diseases.

Among the striking estimated conclu-

sions reported are: the decline in the death rate between 1944 and 1955 means that 1,448,000 persons were living in 1955 who would not be alive if the death rate had remained stationary, and in terms of taxes to the federal treasury this means an estimated gain of $345,570,000.

Federal appropriations for research in the various diseases are contrasted with those for other purposes—$157,000,000 for agriculture research service, but $31,800,000 to the National Cancer Institute, for example; or $312,296,000 for atomic weapons research, but $25,700,000 for heart disease research. National Health Education Committee, 135 East 42nd St., New York 17; $4.75.

An Aid to Understanding Alcohol

The Cleveland Health Museum and the Cleveland Center on Alcoholism have teamed up in an effort to help "Herman Harry," "Scared Suzy," "Tired Tom," "Aching Alma," or just plain you and me understand why they—and we—drink. Knowing that a social custom as deep-seated as drinking cannot be abolished the aim is to help each person, on the basis of facts, determine what his own relation to drinking shall be.

The manual "What We Should Know About Alcohol" is designed to accompany a set of cartoon slides developed jointly by the two agencies. Its chief emphasis is upon understanding the types of personality that feel the need for alcohol and upon the fact that alcohol solves no psychologic problems. What alcohol is and where it comes from, the physiology of alcohol, alcohol and social problems, and social responsibility are also touched upon.

Cleveland Health Museum, 8911 Euclid Ave., Cleveland 6, Ohio; $1.50 for the manual. Information on the slides.

Something New in a State Bulletin

Sometime in 1956 the Nevada State Health Department began the distribution of an occasional Newsletter (perhaps monthly). It is always made up of two Sections—"I, What Goes on Around Us," "II, Meanwhile, Here at Home." In the nine issues at hand one or more happenings in half of the states have been mentioned. This would seem to have merit both as a means of keeping staffs informed and helping them to see their own health services in relation to those of other states.

TB "Practically Wiped Out?"

Because many people believe tuberculosis is "practically wiped out," a national Gallup poll found one person in 17 believing this—the National Tuberculosis Association has launched a nation-wide campaign of public information with "Are You Positive?" This full-color, animated sound film, dealing with widespread misconceptions about tuberculosis, is designed for use by community groups the country over. Whimsy and humor accompany its serious message.

Sixteen mm and 35 mm, 13 and a half minutes. Cleared for television. Available on loan, free of charge from local tuberculosis associations.

PTA Guide for Delinquency Action

The National Congress of Parents and Teachers, because of its millions of members covering practically every community and cross roads in the country, should have a tremendous impact on the juvenile delinquency problem through its "What PTA Members Should Know About Juvenile Delinquency."

Called "a guide to action" this 100-page booklet devotes more than a third of its lineage to explaining the known

or suspected causes of delinquency. Although much is known, too little is yet known, and less than what is known is acted on.

Because, "despite the inadequacies of information and understanding . . . we can build preventive programs" on what is known, the brochure outlines what PTA members can do—self-education, public education, cooperation with other organizations, and special projects. Of the last-named there is a wealth of suggestions, enough and to spare it would seem, for any PTA group.

This booklet might well be in the hands of health workers and others who have direct or indirect contact with the problem of juvenile delinquency. National Congress of Parents and Teachers, 700 N. Rush St., Chicago 11, Ill.; 50 cents.

Worth Acquiring

"Your Employee Health Program" has been prepared by the Safety and Occupational Health Bureau of the Metropolitan Life Insurance Company as "a useful reference in the formation of an employee health program" and "as a help in evaluating an established program." Purpose, functions, and administration of the program are outlined, together with descriptions of such items as medical examinations, on-the-job care, supervision of illness-absence, relation to other company programs, cooperation with local physicians and organizations, and health education. Metropolitan Life Insurance Company, One Madison Avenue, New York 10; free.

"Basic Facts About Mental Illness" is one of the latest publications being distributed by the Mental Health Materials Center. The author of this 32-page booklet is Harry Milt, director of public information, National Association for Mental Health. A foreword by the association's medical consultant, George S. Stevenson, M.D., says it "brings together in a single publication a comprehensive fund of basic information about mental illness, and in such a manner as to maintain readability and scientific soundness."

The booklet is designed primarily as a summary for lay persons who want to understand more about mental illness. It might serve also as a text with students preparing for careers in health and welfare fields and with students in psychology classes, and further as a recruitment aid.

The main questions answered in the booklet are: What is mental illness? How, where, and by whom is it treated?, and What are the chances of recovery?

The booklet was published by Science and Health Publications. Mental Health Materials Center, 1790 Broadway, New York 19; 50 cents, reductions on quantity orders.

Annual Reports

The 1957 report of the International Children's Center in Paris summarizes the eight years of this "symbol of international cooperation . . . placed at the disposal of all institutions for the protection of mother and child in all the countries of the world."

Technical training is one of the Center's main activities. In 1957 a total of 138 fellows from 40 countries and territories attended refresher and training courses in various aspects of child health care. The eight-year figures are 1,343 students from 93 countries, of whom about one-seventh were WHO fellows.

Various training and welfare activities in Africa were aided during the year. Among the social activities was a study of the future prospects of cripples as the basis for an international seminar in 1958 and camps for diabetic and rheumatic children. Research carried on related to tuberculosis vaccination, prevention of rheumatic fever,

nutrition, poliomyelitis. The documentation center, publication service, and international relations are an important part of the Center's activities.

Dr. Etienne Berthet is director-general of the Center and chairman of both its Executive Board and Advisory Technical Committee. The latter is made up of one representative each of the special organizations of the UN Technical Assistance Administration, UNICEF, International Labor Office, Food and Agriculture, UNESCO, and WHO, whose representative is Jerome S. Peterson, M.D.

The United States National Committee on Vital and Health Statistics, now in its 10th year, was established on the recommendation of the First World Health Assembly. A brief annual report for 1957 outlines the current projects of five of its seven active subcommittees or ad hoc committees.

The Committee on Causes of Perinatal Mortality has drafted and reviewed a classification of causes of perinatal death and mortality which is being subjected to field trials before submission for national and international adoption. The Committee on Classification of Physical Impairments has also prepared a draft classification now being studied for its use in describing impairments and rehabilitation potentials in crippled children's programs.

The Committee on Development of National Statistics on Divorces is conducting a consumer survey on the various needs for divorce statistics preparatory to devising a plan for their collection. A Committee on Medical Certification of Medicolegal Cases is devolping plans for improvement in the reporting of causes of deaths coming under medicolegal jurisdiction.

The Committee on Hospital Statistics has in progress a study relating to the utilization of the adaptation of the International Causes of Death to serve the purposes of a diagnostic cross-index. It is also studying the relationship between hospital data and morbidity data of the general population.

The secretary of the National Committee is I. M. Moriyama, Ph.D., chief of the Mortality Analysis Section of the National Office of Vital Statistics, which reproduced and distributed the report for the Committee.

"For Texas Health" is the 17th annual report of the David Graham Hall Foundation, located in Texas and devoted primarily to the betterment of public health in that state. The Foundation and the Trust were created by the late David Graham Hall, M.D., who for 47 years accumulated Dallas property in order to amass "an estate sufficient in size and permanancy to provide adequately perpetual support for a nonprofit foundation dedicated exclusively to the betterment of the public's health and welfare." The early efforts of the Foundation were devoted to the eradication of venereal diseases, including free clinic service for VD patients.

Perhaps the Foundation is best described as a "needling" organization, serving to "provide impartial facts that will motivate direct action on the part of the public toward better health administration . . . carefully collected and utilized morbidity, mortality and service statistics comprise the most effective base from which satisfactory disease control and other health programs may be launched, directed, or discarded."

The basic medium through which facts are provided is the Health Information Clearing House, presently experimental in nature and its life depending on its acceptance by communicating agencies, the health professions, and the public. The Foundation maintains a research library with collections about health, welfare, and hospital services, as well as a microfilm service.

The report, an example of handsome

production, is in reality a summary of the present state and future hopes of public health in Texas. The executive director is Richard F. Voyer, and the offices and facilities are at 3504 Gillon Ave., Dallas 21.

"Saskatchewan Hospital Services Plan, 1957" reviews both the 1957 and 11-year operation of a provincial government program of hospital care insurance for residents. For the last eight years the plan has been administered as a division of the Provincial Department of Public Health.

The plan is financed in part by a personal hospitalization tax levied on a family basis, in part from general funds of the province. Benefits are contingent on prior payment of the family tax and on the medical necessity for hospital care.

Hospitalization experience, financial operations, and organization and administration are summarized, together with a wealth of statistical details. Medical and Hospital Services Branch, Saskatchewan Department of Public Health, Regina.

Social Gerontology

The 11th Annual Conference on Aging at the University of Michigan will for three days, June 23–25, seek to orient its participants in Social Gerontology and its Application. The program is described as "bringing together for the first time a comprehensive and systematic organization of concepts and recent research findings with reference to both invidual and societal aging."

Sponsors with the university are the Federal Council on Aging, the Inter-University Council for Social Gerontology made up of 16 universities, and other organizations.

Fee is $7.50 for the conference. Housing is available at the Michigan Union, 530 State St., Ann Arbor, or the Quadrangle. For the latter and for registration cards write Institutes Department, Extension Service, 1610 Washtenaw, Ann Arbor.

ASSOCIATION NEWS

EIGHTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
ST. LOUIS, MO.—OCTOBER 27–31, 1958

PUBLIC HEALTH POLICY ON RADIOLOGICAL HEALTH—SEPTEMBER, 1957

Introduction

A policy for protecting the public against radiation from radioisotopes or from high voltage equipment is necessarily based on deductions and extrapolations from available information. Facts are limited concerning the extent and effects of human exposure to radiation. Estimates of total exposure and its effects on people are mere projections from these limited facts. Although effects of small doses of radiation are slow to appear, it is assumed that the effects are certain to occur, if not in this generation then in future generations. Therefore, it is dangerous to wait for evidence of radiation damage in the population to justify protective measures. Once the damage is done, even if it is not immediately detectable, there is no known means of reversing the process.

Public Health Policy

Since the effects are not reversible and may be fatal, a policy for radiological health must stand on the side of caution. Because of this need for caution, health agencies are obligated to guard the public against any unnecessary exposure. This policy is supported by certain well established facts about radiation.

Supporting Statement

All Ionizing Radiation Injurious—The effect of ionizing radiation on living tissue is to injure or to destroy cells. Even beneficial effects of radiation on the human body are an indirect result of injury, such as the destruction of malignant cells. Moreover the injurious effects of radiation accumulate as exposures continue. Each exposure to radiation adds to the total stress the body necessarily endures from all causes.

Prevent Unnecessary Exposure—Under sound radiological health policy, concepts of "minimum exposure standards" or "maximum permissible doses" become secondary to the concept of preventing *unnecessary* exposures in any quantity. For the total population, recommended limits of exposure ought to be set at levels well below those currently set for persons occupationally exposed to radiation. It is impossible, of course, to limit exposure to zero, but it is necessary and entirely practical to regard all exposures above zero as a loss to human health unless the gain from such exposure warrants the risk.

Effects Cumulative—The degree of radiation exposure of the population

This statement of policy was formulated by the Association's Program Area Committee on Radiological Health and is published as an official statement of the Association, following revisions suggested by the Governing Council.

likely to have significant consequences is yet to be determined. The total public exposure is the sum of doses experienced by individuals, often in the process of examination, diagnosis, and treatment. Such doses should always be determined by balancing a patient's need against his susceptibility to radiation injury.

Protective Approaches—The technics of protecting the public are of two kinds, those limiting the creation of radiation and those controlling the environment. Restrictions on the construction of nuclear reactors would limit the creation of *radiation*. But this control of the source, a favored strategy in public health programs for conventional hazards, cannot be relied upon exclusively where radiations or nuclear reactions are felt to have beneficial consequences, for example in diagnosis, therapy, power generation, measurement, or research.

The alternative in such situations is to control the *environment*. Examples of environmental control include concentration and isolation of fission products; dilution and dispersion of fission products when it is safe to do so; shielding in the immediate vicinity of radiation producers; and placing radioactive areas off-limits, a form of protection by distance. Ultimately, it may be necessary to extend control of beneficial uses at the source. Various uses will then have to compete for priorities and allocations.

Increasing Problem Requires Action—Construction of nuclear reactors continues. Radiations are being applied in new forms and under new circumstances. Demands and hazards at hand require immediate action. We need to expand public health capabilities and to provide the necessary number of trained qualified personnel; to orient the health professions and the public to limit radiation exposures; to pursue further quantitative studies of radiation exposures and their effects; and to compile data on radiation exposure which can be related to health conditions.

It is not the purpose of this statement to outline a program but merely to indicate how certain basic assumptions shape public health policy. This policy is directed to broad protection of the whole population and to control of the entire radiation environment.

1958 GOVERNING COUNCIL NOMINATIONS

The Nominating Committee for Elective Councilors has completed its assignment for this year by submitting the following names as its selections of Governing Council nominees for 1958.

Section 1 of Article VIII of the Association By-Laws provides that the Nominating Committee, consisting of one representative elected by each Section and a chairman appointed by the Executive Board, shall "present to the Administrative Office not less than six months before the Annual Meeting the names of the Fellows selected as nominees for the Governing Council. The number of nominees shall be not less than two nor more than three times the number of vacancies which will exist at the adjournment sine die of the Governing Council at the next Annual Meeting." Section 2 calls for publication of the nominees not less than five months before the Annual Meeting.

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Union Health Service
Chicago, Ill.

Isidore Altman, Ph.D.
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Pittsburgh, Pa.

Carl L. Anderson, Dr.P.H.
Oregon State College
Corvallis, Ore.

Katherine Bain, M.D.
Children's Bureau
Washington, D. C.

Herman G. Baity, Sc.D.
World Health Organization
Geneva, Switzerland

Charles F. Blankenship, M.D., M.P.H.
Public Health Service
San Francisco, Calif.

Benjamin D. Blood, D.V.M., M.P.H.
Centro Pan Americano de Zoonosis
Buenos Aires, Argentina, S. A.

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Chapel Hill, N. C.

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State Department of Health
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Gerald Caplan, M.D.
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Berkeley, Calif.

Harry E. Goresline, Ph.D.
Quartermaster Food and Container Institute
Chicago, Ill.

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Milbank Memorial Fund
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Philadelphia, Pa.

Morton Kramer, D.Sc.
National Institute of Mental Health
Washington, D. C.

Alexander D. Langmuir, M.D., M.P.H.
Public Health Service
Atlanta, Ga.

Richard K. C. Lee, M.D., Dr.P.H.
Department of Health
Honolulu, Hawaii

Lucille P. Leone, R.N., M.A.
Public Health Service
Washington, D. C.

Hugh R. McLaren, D.D.S., D.P.H.
Department of National Health and Welfare
Ottawa, Ont., Canada

J. Wister Meigs, M.D.
Yale University
New Haven, Conn.

Sewall O. Milliken, M.P.H.
Yale University
New Haven, Conn.

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Ann Arbor, Mich.

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Columbus, Ohio

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Los Angeles, Calif.

Wesley O. Young, D.M.D., M.P.H.
State Board of Health
Boise, Idaho

Fellows and Members of the Association are reminded that Section 3 of By-Law Article VIII states that "upon the petition of twenty-five Fellows or Members, the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than three months before the Annual Meeting." The closing date for the receipt of such petitions in the Administrative Office will be July 27, 1958.

The list of Governing Council nominees shown above, plus any that may be added by petition, will be carried on the official ballot that will be mailed after August 13 to all Fellows and Members in good standing. There will be 19 vacancies on the Governing Council to be filled.

The Members and the Sections represented of the 1958 Nominating Committee for Elective Councilors are:

R. Gerald Rice, M.D., M.P.H.—Chairman and representing the Unaffiliated group.
Helen W. Bellhouse, M.D.—Maternal and Child Health Section
Heinrich Brieger, M.D.—Occupational Health
Duncan W. Clark, M.D.—Medical Care
Paul M. Densen, D.Sc.—Statistics
Leonard J. Duhl, M.D.—Mental Health
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Ernest S. Tierkel, V.M.D.—Epidemiology
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Poultry Inspection Recommendations

A report of the Subcommittee on Poultry Inspection and Sanitation of the Committee on Evaluation and Standards appeared in the October, 1957, issue of the Journal for comments of the membership. Upon recommendation of the Committee on Evaluation and Standards the report was adopted by the Governing Council as an Association statement on November 13, 1957, with two amendments.

The second paragraph under "Background" (p. 1326), about the relation of food-borne diseases to insanitary conditions, now reads, "Over 30 per cent of the cases of reported food-borne diseases have been associated with the consumption of poultry. It is not known what proportion of these cases is caused by diseases in the poultry itself because some of these food-borne outbreaks resulted from insanitary conditions within or outside processing establishments. A substantial number were caused by organisms of poultry origin, particularly Salmonella."

The second change is in the paragraph (p. 1330) recommending that poultry sick or otherwise unfit for human food be so treated as to preclude its use for such food. Here the final phrase, "and prevent the dissemination of disease" is omitted.

Copies of the approved report from the Association office, 1790 Broadway, New York 19, 50 cents.

Mississippi State Health Bulletin

"Mississippi's Health: News and Views" is the newest arrival among state health department news letters. The first issue, January, 1958, devotes itself to a record of a series of 1957 "firsts." These were ground breaking for a first building of its own in the 80-year history of the department, the "nation's first extensive evaluation" of the home treatment program for active cases of tuberculosis, the first lagoon in the southeastern part of the United States for the treatment of sewage, direct diagnostic and consultant mental health services made available, and the first year of round-the-clock full-scale operation of the seven milk laboratories.

This is a four-page bulletin with a colored masthead, effectively printed by offset, and using photographs of actual operations.

APHA membership application blank on page XXXV

American Public Health Association

COMMITTEES 1957–1958

A topical outline of the interests of professional public health workers in 1958 is presented through the names of more than 150 Association and Section committees, subcommittees, and study committees published below with their personnel. Among the committees and groups listed are those concerned with formulation of policy and guidance of the complex administrative affairs of the Association and of the Sections, as well as those carrying forward the scientific and educational aspects of the program.

Hundreds of Fellows and Members serve this organization in one way or another during any given year, none more generously than members of its committees.

The Association acknowledges its indebtedness to Fellows and Members currently serving and to all whose names have appeared on similar lists in the past.

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Secy., Rema Lapouse, M.D., Kenmore, N. Y.

Occupational Health

Chm., Herbert T. Walworth, Chicago, Ill.
Vice-Chm., Lewis J. Cralley, Ph.D., Cincinnati, Ohio
Secy., Mitchell R. Zavon, M.D., Cincinnati, Ohio

Public Health Education

Chm., Ralph Boatman, Jr., Ph.D., Chicago, Ill.
Vice-Chm., Betty W. Bond, Ph.D., Minneapolis, Minn.
Secy., M. Elizabeth Davis, Columbia, S. C.

Public Health Nursing

Chm., Julia D. Smith, R.N., Chapel Hill, N. C.
Vice-Chm., E. Alice Clark, R.N., Atlanta, Ga.
Secy., Agnes L. Fuller, R.N., New York, N. Y.

School Health

Chm., Elena Sliepcevich, D.P.E., Columbus, Ohio
Vice-Chm., John H. Shaw, Ed.D., Syracuse, N. Y.
Secy., Florence L. Fogle, R.N., Columbus, Ohio

Statistics

Chm., Bernard G. Greenberg, Ph.D., Chapel Hill, N. C.
Vice-Chm., Mortimer Spiegelman, New York, N. Y.
Secy., Robert D. Grove, Ph.D., Arlington, Va.

Representatives of Affiliated Societies and Branches

Alabama—Sidney J. Williams, M.D.
Arizona—Lynn J. Lull, M.D.
Arkansas—A. M. Washburn, M.D.
California, Northern—David Frost, M.D.
California, Southern—Agnes O'Leary
Colorado—Roy L. Cleere, M.D.
Connecticut—Eric W. Mood
Cuba—Guillermo Lage, M.D.
Florida—Wilson T. Sowder, M.D.
Georgia—A. J. Davis, M.D.
Idaho—Wesley O. Young, D.M.D.
Illinois—Leroy L. Fatherree, M.D.
Indiana—F. R. Nicholas Carter, M.D.
Iowa—Edmund G. Zimmerer, M.D.
Kansas—Dwight F. Metzler
Kentucky—Russell E. Teague, M.D.
Louisiana—Ben Freedman, M.D.
Massachusetts—Nicholas J. Fiumara, M.D.
Michigan—Albert E. Heustis, M.D.
Minnesota—Abraham B. Rosenfield, M.D.
Mississippi—Margaret E. Rice
Missouri—J. Earl Smith, M.D.
Montana—G. D. Carlyle Thompson, M.D.
Nebraska—Edwin D. Lyman, M.D.
New Mexico—Myrtle Greenfield
New York City—Arthur Bushel, D.D.S.
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North Dakota—Melvin E. Koons
Ohio—George H. Eagle
Oklahoma—Margaret F. Shackelford
Oregon—Clair V. Langton, Dr.P.H.
Pennsylvania—Karl M. Mason
Puerto Rico—Jose A. Hernandez-Matos, M.D.
South Carolina—G. S. T. Peeples, M.D.
South Dakota—Herbert A. Hudgins, M.D.
Tennessee—Lloyd M. Graves, M.D.
Texas—Henry E. Drumwright
Utah—Grace C. Nason
Virginia—Charles L. Outland, M.D.
Washington State—Bernard Bucove, M.D.
West Virginia—Bruce H. Pollock, M.D.
Wisconsin—Margaret E. Hatfield, M.D.
Southern Branch—Henry E. Drumwright
Western Branch—Harold M. Erickson, M.D.

NEWS OF AFFILIATED SOCIETIES AND BRANCHES

Michigan's APHA Liaison Committee

As long ago as early 1956 the Michigan Public Health Association appointed an ad hoc committee to explore and recommend ways by which the relationship between APHA and MPHA could be strengthened. By January, 1957, it was established as a Standing Committee and named APHA Liaison Committee. Shortly thereafter this committee sent a questionnaire to MPHA members and others interested in it.

Such items as membership in APHA and MPHA, reasons for joining or not joining each, knowledge of the services available from each, and suggestions for improving the services for each were included in the 12 questions.

Nearly a fourth of the 752 questionnaires were returned. Of the 184 replying all but 6 per cent were MPHA members, but only 49 per cent were APHA members. Fewer than 10 per cent were in other than official agencies. Nursing represented the largest single group, nearly 40 per cent of the total.

The 94 persons who were not members of APHA gave 116 answers for not belonging. Each of four reasons represented between one-fifth and one-fourth of the total—"do not know enough about it, have other access to the Journal, cannot attend annual meeting, and costs too much"—in that order. "Don't recognize any value to me," was reported by a somewhat smaller per cent of persons and two, perhaps plaintively, reported that "nobody has encouraged me to join."

The 90 who were APHA members reported 332 reasons for joining. The most frequent reason was to identify with the national professional organization—27 per cent of the total. The Journal was next in importance with 22 per cent. About one-sixth reported the annual meeting, about a seventh, member services, about 10 per cent to serve on Section or Association Committees, and about 6 per cent to serve as Section or Association officers.

The 173 members of MPHA reported 488 reasons for belonging, a third of them for identification with a state professional organization, about one-fifth to attend the annual meeting, nearly as many to obtain member services, and others to serve as Section or Association Committee members or officers.

Members of APHA knew of its annual meeting and at least three-fourths knew about each of 21 separate APHA services listed. The fewest number knew about the Professional Examination Service and the fact that the Association serves as liaison between voluntary and official agencies. Two services least known by nonmembers are PES and the Book Service. The largest numbers of both members and nonmembers of APHA have used the Journal and reprints, the annual meeting, the standards volumes, and the newsletters in that order. The largest number in each group would like to have the promotion of public understanding about public health extended. Next in importance for greater attention are the information service and the counseling and employment service.

MPHA members were largely aware of 10 selected services of their organization but did not report using them as extensively as APHA members of its services. The services most frequently asked for extension were promoting financial support for public health, stimulating recruitment and training, and promoting state public health legislation.

The assistance from APHA to MPHA most frequently requested is special field staff and help with annual meeting program planning. Next in importance is a better system for exchange

of information and ideas and clearing relationships between parent and affiliate. Promoting and sponsoring legislation and conducting regional meetings are other services requested.

Suggestions for MPHA's usefulness to APHA were much less numerous than vice versa. The most frequent were better communication with APHA, encouragement of APHA membership, and more coordination of activities with those of APHA.

Minnesota Chesley Memorial Lecture

At the 1957 meeting of the Minnesota Public Health Conference in Minneapolis on September 19 and 20, John W. Knutson, D.D.S., retiring president of the American Public Health Association, delivered the second annual Albert J. Chesley Memorial Lecture in Public Health. His subject was "Greater Application of Scientific Advances Is Crucial Public Health Need." He paid tribute to what he considered Dr. Chesley's "two most outstanding contributions to public health"—recruiting, encouraging and developing future public health leaders, and his service to professional organizations, notably his 18-year secretaryship of the State and Provincial Health Officers Association.

The conference awarded honorary life membership to Edgar J. Huenekens, M.D., Minneapolis pediatrician, member of the State Board of Health and chief of staff, Elizabeth Kenny Institute; and to Mrs. C. J. Schmitz, chairman of nursing services of the St. Paul Red Cross and member of Governor Freeman's Committee on Child Health.

The following officers were elected:

President: Clare Gates, D.P.H., director, Health and Medical Care Division, Minneapolis Community Welfare Council

Vice-Presidents: Robert D. Ragsdale, M.P.H., executive secretary, Hennepin County Tuberculosis Association; Mrs. C. J. Schmitz

Secretary: Dean S. Fleming, M.D., M.P.H., chief, Section of Preventable Diseases, State Department of Health

Treasurer: Stewart Thomson, M.D., M.P.H., professor and assistant director, University of Minnesota School of Public Health.

Since Clare Gates almost immediately thereafter accepted a position in Detroit, Mr. Ragsdale has succeeded to the presidency.

Alabama, New Affiliate, Meets

The Alabama Public Health Association held its first meeting, following its affiliation, in Birmingham on March 13 and 14. In his presidential address on "Teamwork in Public Health," President George A. Denison, M.D., health officer of Birmingham-Jefferson County, reported a membership of nearly 600 representing 19 disciplines and 101 different organizations.

Two special features of the meeting were the Judson Davie Dowling lecture in honor of the achievements of the late Dr. Dowling who was Jefferson County health officer for a quarter of a century. Given by Edward G. McGavran, M.D., dean, University of North Carolina School of Public Health, he challenged present-day health to a pioneering spirit in meeting the new frontiers of new methods, new ideas, and new programs in public health.

The second special event was the recognition of Edwin V. Caldwell, M.D., practicing surgeon of Huntsville, "for distinguished service to Alabama in medicine and public health." D. G. Gill, M.D., state health officer, read the citation.

Among the events of the general sessions were a discussion of cancer research problems by Harry M. Weaver, M.D., vice-president for research of the American Cancer Society, and an address on "The Forward Look in Sanitation" by Walter F. Snyder, executive director of the National Sanitation Foundation. One afternoon was devoted to

meetings of each of the seven sections. The officers elected are:

President: Sidney J. Williams, M.D., Sumter County health officer

Vice-Presidents: Catherine Corley, director, Division of Public Health Nursing, State Health Department; L. L. McKee, sanitation officer, Etowah County Health Department

Secretary-Treasurer: Norma L. Chandler, State Health Department.

APHA AFFILIATED SOCIETIES AND BRANCHES

SOCIETY AND SECRETARY

ALABAMA PUBLIC HEALTH ASSOCIATION, Norma L. Chandler, State Health Dept., Montgomery

ARIZONA PUBLIC HEALTH ASSOCIATION, Goldie Gold, Maricopa County Health Dept., Phoenix

ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock

CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Emanuel H. Pearl, 2220 Moorpark Ave., San Jose 28

CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Bryon O. Mork, M.D., University of California at Los Angeles, Los Angeles

COLORADO PUBLIC HEALTH ASSOCIATION, Mildred Dester, M.D., School Administration Bldg., Denver

CONNECTICUT PUBLIC HEALTH ASSOCIATION, E. Louise Ratcliff, M.P.H., Griffin Hospital, Derby

CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, Calle 19 No. 511 Alton Vedado, Havana

FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville

GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta

IDAHO PUBLIC HEALTH ASSOCIATION, Wesley O. Young, D.M.D. P. O. Box 640, Boise

ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston

INDIANA PUBLIC HEALTH ASSOCIATION, Hester Beth Bland, 1330 W. Michigan St., Indianapolis

IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines

KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Office Bldg., Topeka

KENTUCKY PUBLIC HEALTH ASSOCIATION, Mrs. Rosalie Walters, 620 S. Third St., Louisville 2

LOUISIANA PUBLIC HEALTH ASSOCIATION, Mrs. Lucille Sawyer, Caddo Parish Health Unit, Shreveport

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Case, Dept. of Health, Cambridge

MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing

MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis

MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson

MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City

MONTANA PUBLIC HEALTH ASSOCIATION, Mrs. Emma Wright, Box 811, Harve

NEBRASKA PUBLIC HEALTH ASSOCIATION, Orville D. DeFrain, Lincoln-Lancaster County Health Dept., Lincoln

NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N.E., Albuquerque

NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Joseph Kadish, Ed.D., 164 W. 174th St.

NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mrs. Kathleen Boland, State Dept. of Health, 84 Holland Ave., Albany

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, E. W. Brown, Bucombe County Health Dept., Asheville

NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck

OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton

OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City

ORGEON PUBLIC HEALTH ASSOCIATION, Christie Corbett, R.N., State Board of Health, Portland

PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg

PUERTO RICO PUBLIC HEALTH ASSOCIATION, Mrs. Virginia V. de Lara, Dept. of Health, San Juan 2

SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Laura M. DeMarse, State Health Dept., Columbia

SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice Brady, R.N., State Dept. of Health, Pierre

TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville

TEXAS PUBLIC HEALTH ASSOCIATION, Wayne H. Garrett, City Hall, Fort Worth

UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City

VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 7088, Richmond

WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Jack E. Mathews, State Dept. of Health, Smith Tower, Seattle

WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Paul B. Shanks, State Health Dept., Charleston

WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison

SOUTHERN BRANCH, A.P.H.A., Guy V. Rice, M.D., State Dept. of Health, Atlanta, Ga.

WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

EMPLOYMENT SERVICE

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Medical Health Officer—for metropolitan health district serving population of 150,000; $500,000-headquarters building just completed. Group medical, hospital, and life insurance available at moderate cost. Retirement system. Starting salary $12,000. Apply Board of Health, East Side Health District, 638 N. 20th St., East St. Louis, Ill.

Public Health Physician Positions—in state and county health departments. Must be eligible for licensure in Kentucky. Public health training or experience desired; however, others may be considered. Beginning salaries $10,000–$10,872. For details, write Merit System Director, Kentucky State Health Department, 620 S. Third, Louisville 2, Ky.

Health Director—for growing county of 65,000 located adjacent to Kansas City, Missouri. Modern health center recently completed. Three-year-old department with excellent opportunity for program development. Public health degree with some experience required. Salary open. Make application to Edward H. Fischer, M.D., 306 E. 21st Ave., North Kansas City, Mo.

Public Health Physician (District Health Officer)—State of Wisconsin. Two positions. One position includes 11 counties in north central part of state, headquarters Rhinelander. Second position includes eight counties in area bordering Lake Michigan, north of Milwaukee, headquarters Fond du Lac. Act as medical administrator of district office; district epidemiologist; plan, organize, supervise work of district office personnel consisting of public health engineer, public health nurse, sanitarians, nutritionist, dental hygienist. M.P.H. degree plus three years' experience in public health administration; eligibility for a license in Wisconsin. Salary $11,640–$14,460 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Deputy Commissioner—for preventive medicine, Cleveland Division of Health. Salary range $10,000–$12,704. Requirements: Graduation in medicine, eligibility for license in Ohio, eligibility for certification by the Board of Preventive Medicine or Pediatrics, three years' experience, including two years in administration. Forms available from Commissioner of Health, Cleveland, Ohio.

County Public Health Officer—Salary open. Excellent opportunity for person with M.D., California registration, education and/or experience in public health, to administer health program in county of 150,000 population; direct staff of 56 employees with annual budget over $288,000. For particulars, write to H. R. Herrin, Director of Personnel, County of Tulare, Visalia, Calif.

Public Health Nurse Consultant—for direct supervision and staff development to local public health nursing services. Social Security plus state retirement plan, Blue Cross, Blue Shield, merit system, and new lease car for personal use. Beginning salary dependent on qualifications, plus annual merit increase for five years. Write Miss Marian Chladek, Director, Division of Public Health Nursing, Wyoming Department of Public Health, State Office Bldg., Cheyenne, Wyo.

Public Health Nurses—Immediate openings in city-county health department. Generalized program. Liberal personnel policies and benefits. Beginning salary range $4,072–$5,304, depending on qualifications, with five-step increases. Write D. D. Carr, M.D., Director, P. O. Box 392, Las Vegas, Nev.

Director, Nursing Education—Jefferson County Health Department. Salary $4,812–$5,844; B.S. degree in public health nursing and experience as nursing supervisor required; 40-hour week; Social Security and retirement benefits; staff of 55 nurses. Apply to Health Officer, Jefferson County Health Department, P. O. Box 2591, Birmingham, Ala.

Public Health Nurse—for Southern California county health department near desert, mountains, and seashore. Beginning salary $397; increases to $483. California registration required. Paid vacation and sick leave, part-paid health insurance, other benefits. County Personnel, 236 Third St., San Bernardino, Calif.

Public Health Nursing Positions—Available in Health Department with the city of Flint, a rapidly growing city of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Car furnished. Beginning salary rates: $3,952, $4,329, or $4,654, depending on experience and qualifications. Automatic increases and longevity rates for length of service. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

PHN Supervisor—for diagnostic chest clinic. Eligible R.N. registration in New Jersey, degree essential, two years' experience visiting nurse association. Liberal personnel policies, position immediate, salary open, depending on qualifications and experience, opportunity for advancement. Mrs. William J. Wilson, President, Visiting Nurse Association, 2332 Pacific Ave., Atlantic City, N. J.

Public Health Nurses—for generalized public health nursing program in combination agency. Liberal personnel policies. Salaries based on qualifications. Agency owned cars. Accessible to universities offering public health nursing programs. Apply Director, Community Nursing Service, 65 Chestnut St., Montclair, N. J.

Public Health Nurses—Beginning salary $4,440. **Graduate Nurses**—Beginning salary $4,020. Five-day work week from 8:30 a.m. to 4:30 p.m. Four weeks' vacation, 11 holidays, 12 days' sick leave annually. Pension plan. Generalized public health nursing agency founded by Lillian D. Wald. Ongoing inservice education program. Four universities offer opportunities for study at all levels. Some scholarship assistance available. For information, write or call Personnel Office, Visiting Nurse Service of New York, 107 E. 70th St., New York 21, N. Y. Telephone Lehigh 5-1100.

Public Health Nurse—Opening for **Public Health Nurse II.** B.S. degree plus one year experience in established health department. Salary range $360 per month to $450 per month, plus liberal travel allowance. **Nurses** without experience and with degrees and public health training can qualify as **Public Health Nurse II** after one year employment. Write to J. H. White, M.D., Director, Weld County Health Department, P. O. Box 521, Greeley, Colo.

Public Health Nurses—Generalized program in newly formed county-wide combination nursing service. Beautiful residential county adjoining Chicago metropolitan area. Nursing staff of 28. Salary $325–$400 per month. Liberal sick leave, vacation, car allowance. Write to Dr. Charles A. Lang, Director, DuPage County Health Department, 209 E. Liberty Dr., Wheaton, Ill.

Supervisor, Visiting Nurse Association—Southeast central Pennsylvania. Town and rural service population serving approximately 150,000. Physical therapy at headquarters and in the field. Thirteen staff nurses, two physical therapists. Generalized public health service with some industry and nursery schools. Education for parenthood classes and clinic for crippled children. Area highly industrialized and agricultural. Fifty miles from Baltimore, 90 miles from Philadelphia and Washington. Good personnel policies. Liberal salary dependent on qualifications. Write Director, V.N.A., 218 E. Market St., York, Pa.

Public Health Engineer (GS-11, $6,390–$7,465)—Position available with the Housing Division, Department of Licenses and Inspections, District of Columbia Government, Civil Service, permanent. Position is chief, Slum Prevention Branch. Duties include planning and directing field surveys and research activities for developing long- and short-range programs to prevent housing deterioration. Requirements: Degree in civil or sanitary engineering and field experience in environmental sanitation and/or public health engineering. Contact Frederick W. Mallon, Superintendent, Housing Division, Room 119, District Bldg., 14th and E Sts., N.W., Washington, D. C.

Sanitarian—to execute a program of public health sanitation and education in LaGrange, Ill., one of Chicago's finest western suburbs. Bachelor's degree or equivalent experience. Salary open. Car necessary, allowance given. Attractive fringe benefits. Apply Robert E. Meyer, Village Manager, Town Hall, LaGrange, Ill.

Sanitarian III—$4,836–$5,880. Kingman, Mohave County. One-man operation. Three years' experience required. Arizona Merit System, 11 N. 17th Ave., Phoenix, Ariz.

Public Health Nursing Position—in county health department serving rural-suburban population 90,000. Generalized service including school and bedside care. Field training center. Agency in college community near Cleveland. Salary range $4,140–$5,040. Public health nursing preparation required. Please write Miss Nancy McMurray, Nursing Director, Lorain County Health Department, Oberlin, Ohio.

Director of Nurses—for nursing staff of 16 city health department nurses. Liberal benefits, including a month's vacation. City

Public Health Personnel needed by

THE CITY OF LOS ANGELES

—EPIDEMIOLOGIST—

Salary range $889 to $992, depending upon qualifications of applicant.

Directs Epidemiology phases of a public health program, including liaison with a communicable disease hopsital.

—SANITARIAN—

Salary range $417 to $516

—PUBLIC HEALTH NURSES—

Salary range $417 to $516

—MEDICAL SOCIAL WORKERS—

Salary range $417 to $516

—PHYSICIAN—

Beginning salary $755

This is a Public Health Residency with assignments in most areas of public health, especially local health services and epidemiology.

—ASSISTANT HEALTH OFFICER—

Directs programs in Adult Health, Preemployment Medicals, and Alcohol Rehabilitation. Administrative experience and M.P.H. degree are desired.

Salary open, subject to qualifications of applicant.

California license or registration and United States citizenship are required for these positions.

Write to GEORGE M. UHL, M.D., *Health Officer*
Los Angeles City Health Department
111 East First Street
Los Angeles 12, Calif.

of 113,000, 20 miles from New Haven. Branch of the University of Connecticut in city. Prospects of opportunity for developing a generalized nursing program in professionally satisfying atmosphere. Salary open. **Sanitarian**—To perform work in a generalized environmental sanitation program in a city with a population of 113,000. Liberal personal benefits. Salary range $4,940–$5,720. Address applications to the Personnel Committee. Board of Health Commissioners, City Hall, Waterbury, Conn.

Public Health Engineer IV—Assignment as district public health engineer, Chippewa Falls. M.S. degree in sanitary engineering or related fields plus three years' practical experience, some in supervisory capacity. Registration as professional engineer desired. Starting salary $7,620, plus travel allowance with merit increases to $9,120. **Public Health Engineer III (two openings)**—One opening: stream pollution control, Wisconsin Rapids District Office. One opening: environmental sanitation, central office, Madison. B.S. degree in civil, sanitary, chemical, or public health engineering, plus three years' experience. Qualification for future registration as professional engineer in Wisconsin. Starting salary $7,020, plus travel allowance with merit increases to $8,400. Vacation, sick leave, Social Security, retirement. Write Henry A. Kjentvet, Wisconsin State Board of Health, Madison 2, Wis.

Sanitarian-Colorado—Should have degree and two years of experience, preferably some in milk. Starting salary dependent upon qualifications, but would be in the range between $385–$415. Good opportunity for promotion. Three weeks' annual vacation. Write to John S. Anderson, M.D., Director, Pueblo City-County Health Department, Pueblo, Colo.

Public Health Sanitarians—Salary range $5,296–$5,656 annually. Work in County Health Department, 17 miles from downtown Detroit. One day vacation and sick leave earned per month, liberal retirement benefits. Age not over 50. Training: B.S. in sanitary science or civil engineering with sanitary option; or B.S. degree in allied science plus one year experience. Apply: Morton Hilbert, Chief Engineer, Wayne County Health Department, Eloise, Mich.

Chief Psychiatric Social Worker—for Alabama's Commission on Alcoholism first outpatient clinic (Birmingham). Close tie-in with Medical College Department of Psychiatry. Person filling this job will have excellent opportunity for promotion as program expands. Retirement program and Social Security benefits. Salary open. Write to A.C.A., 8 N. Union St., Montgomery, Ala.

Social Workers—Openings for MSW graduates in new 600-bed hospital for the treatment and rehabilitation of chronically ill, active in teaching and research, located in Boston area, medical-social sequence helpful, Massachusetts State salary scale $4,316–$5,564. Contact Miss Idah L. Salzman, Lemuel Shattuck Hospital, 170 Morton St., Jamaica Plain 30, Mass.

A leading national voluntary health association has openings in various parts of the country in many categories—**Field Workers, Health Educators, Chapter Executives.** Master's degree in health education or related fields desirable but not essential. Some experience in public health, community organization or administration of voluntary health agency required. Positions and salaries commensurate with background and prevailing local conditions. We want candidates who are interested in long-range career planning. Please send résumé to **Box C-31,** Employment Service, APHA.

Challenging opportunity to **Head Voluntary State Mental Health Agency.** Requirements: One year postgraduate training in a recognized school of public health, preferably with a degree or certificate in public health; five years' experience, including one year in community organization and two to three in supervisory work, preferably with increasing amount of experience in administration. Salary range $10,000–$12,500. For information write Dr. James S. Whedbee, Jr., Chairman, Personnel Practices, Maryland Association for Mental Health, 1118 St. Paul St., Baltimore 2, Md.

Medical Bacteriologist—The University of Ottawa requires an assistant professor of bacteriology in the Faculty of Medicine. Applicant should be a graduate of medicine with postgraduate experience in bacteriology, preferably in teaching or laboratory instruction. Salary open. Please state salary expected. Address inquiries to Dr. R. J. Gibbons, Professor of Bacteriology, Faculty of Medicine, University of Ottawa, Ottawa, Ont., Canada.

Executive Director—Direct the planning and program of the association within policies established by Board of Directors. Assume full administrative responsibility for the program; degree in public health is desirable and a minimum of five years' successful experience in TB or allied work is required. Retirement, Social Security. Salary open. Contact Mr. Francis A. Kelly, Middlesex Health Association, 385 Broadway, Somerville 45, Mass.

Residency in Public Health—Two-year Board-approved residency in well established health department in California. Salary $755 per month; maximum age 35 years; California license required. Apply **Box PH-81,** Employment Service, APHA.

Public Health Nursing Consultant (Assistant to Director of Public Health Nursing in State Health Department)—Give consultation to public health personnel in all

phases of public health nursing, including in-service education; prepare manuals, guides, etc., for public health nurses; assist in administration of program. Bachelor's degree in public health nursing minimum preparation; master's degree desirable; four years' experience in public health nursing, including two in administration or supervision. Salary: start at $5,750; maximum $6,900. Civil service, vacation, sick leave, Social Security, and retirement benefits. Write Henry A. Kjentvet, State Board of Health, State Office Bldg., Madison 2, Wis.

Public Health Physicians—for overseas employment. Salary range of $9,000–$14,000 plus liberal allowances. Vacancies in Near and Far East. Essential qualifications are formal training or experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Sanitary Engineers and Sanitarians—for overseas employment. Salary range of $6,100–$12,400 plus liberal allowances. Vacancies in Near and Far East, Africa, and Latin America. Essential qualifications are formal training or experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Executive Director—Visiting Nursing Service for Sonoma County (Redwood Empire area). Share in pioneering and developing service now being organized. B.S. degree and P.H.N. certificate required, with experience in visiting nursing administration and supervision. Write Cedric C. Johnson, M.D., President, V.N.S. for S.C., 1116 Mendocino Ave., Santa Rosa, Calif.

Public Health Nurse—Needed for generalized nursing program in an official agency. Salary dependent on qualifications, minimum $4,200 with increments, plus generous car allowance. Forty-hour week, vacation, sick leave, eleven paid holidays. Retirement plan and Social Security. Apply W. J. Broad, M.D., M.P.H., Health Officer, McLean County Health Department, 318 E. Locust St., Bloomington, Ill.

Health Educators—for overseas employment. Salary range of $6,100–$10,500 plus liberal allowances. Vacancies in Near and Far East, Africa and Latin America. Essential qualifications are formal training and experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Sanitarian or Engineer—to plan, organize, and head a department and program for Michigan county of 1,300,000 population. Progressive community on Lake Michigan. Salary open. Training: B.S. in engineering, sanitary science, public health, or allied, plus M.P.H. or equivalent, plus ten years' experience. Apply: Floyd Marrs, Chairman, Berrien County Health Service, Courthouse, St. Joseph, Mich.

Chief, Health Education Department—$6,600–$8,040. Responsible for administration of program promoting health education, Co-op. education, and public relations functions. Requirements: Between 28 and 50. Graduate degree in public health education, plus three years of health education experience with a voluntary or public health agency. Supervisory experience helpful. R. D. Nelsen, Personnel Director, Group Health Cooperative of Puget Sound, 200 15th Ave. N., Seattle 2, Wash.

Public Health Nurse—To work in Livingston County with headquarters in Howell, Mich. Generalized public health nursing program. Liberal personnel policies; Social Security. Beginning salary $4,500 per year with seven cents per mile travel. Write Dr. A. B. Mitchell, Director, Shiawassee-Livingston District Health Department, Court House Annex, Howell, Mich.

Open to citizens of the United States who possess the minimum qualifications:

Medical Social Work Adviser (Female)—$5,096–$6,136.

Medical Social Worker (Female)—$4,472–$5,356.

Dietitian I (Female)—$4,264–$5,096.

Medical Technologist I—$3,588–$4,264.

Write Personnel Director, Municipal Building, Hartford, Conn.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Bacteriologist—M.S.; married male. Four years' medical laboratory and five years' public health laboratory experience encompassing diagnostic bacteriology, sanitary bacteriology, and parasitology. Desire position in a public health laboratory. Write **Box L-59**, Employment Service, APHA.

Microbiologist, Immunologist—Doctor of science (microbiology) with strong background in medical sciences, bacteriology, parasitology, public health. Teaching experience in medical schools and in organizing course work, planning and conducting research. Seeks faculty position for teaching

and research in medical school, school of public health or graduate school, or academic position as senior associate with group engaged in basic research. $7,000 minimum. **Box L-60,** Employment Service, APHA.

Physician, Veterinarian—Extensive experience in bacteriology, virology, epidemiology, public health problems, and tropical diseases. Desire position with public health organization, university, or industry. Write **Box PH-82,** Employment Service, APHA.

Public Relations Director—Highest-level results in all mass media; long executive newspaper experience on both sides of editorial desk. Expert in planning, executing PR programs, speech writing, house organ editing, research directing, fund-raising, campaign planning. Desires staff position or special projects. Will relocate. **Box M-19,** Employment Service, APHA.

Bacteriologist—B.S., 31, desires opportunity in biological, medical, or public health laboratory. Seven years' experience, including public health. Write **Box L-61,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Public health physician to direct over-all program of health service, including those of teacher-nurse service, hearing and vision conservation program; would consult with school administrators, teachers, parents, nurses, representatives of official and nonofficial agencies in promotion of health service; minimum five years' experience required; city of several million; Midwest. (b) Professor or associate professor of public health administration and chairman of school of public health, university under American auspices, foreign country; also associate or assistant professor, public health education; M.P.H. essential; department covers public health, administrative medicine, tropical health; students from 17 different countries, all teaching in English; travel provided for appointee and family. (c) Deputy health officer; Canadian eligible; $9,500, traveling expenses; Michigan. (d) Direct student health department; will be closely involved administratively; Florida. (e) Woman physician; assistant, health service, women's college; rank: assistant professor; East. (f) Health educator to supervise state program to aid communities in serving the aging; Midwest; $580–$695. (g) Sanitarian; degree in sanitary sciences, public health, or engineering, three years' experience required; foreign operations, major industrial company; $10,000–$12,000. PUBLIC HEALTH NURSES: (h) Executive director, VNA; would be responsible for administration of entire program; report to Board of Directors; town 80,000 near New York City; $5,000–$6,600. (i) Director, nursing school and service and, also, head of public health nursing program; university under American auspices, foreign country; students from 13 countries; all instruction in English. (j) Assistant professor, public health nursing; medical college; South. (k) Public health coordinator; to direct health and teach; 350-bed hospital associated with one of leading private practice clinics in East; outstanding opportunity. (l) Director, public health nursing service; combination type agency; university city, Southwest.

OPPORTUNITIES WANTED

WANTED—Opportunities for public health physicians, nurses, health educators, engineers, laboratory personnel. Candidates in all parts of the country, available for administrative, academic and staff appointments. Negotiations strictly confidential.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

FOUR BASIC ASPECTS OF PREVENTIVE PSYCHIATRY—Report of the First Institute on Preventive Psychiatry held at the State University of Iowa, April 3, 1957—Edited by Ralph H. Ojemann. Iowa City, Iowa: State University of Iowa, Department of Publications, 1957. 122 pp. Price, $2.00.

This is a well edited little book which gives in clear and readable form an overview of certain problem areas in the mental health field. It is based on a discussion of four papers which were delivered at a multidisciplinary conference.

The first paper by Jacques S. Gottlieb, M.D., presents very well some of the problems involved in building up a conceptual framework for preventive psychiatry on the basis of our current global and culture-bound definitions of mental health.

The second paper by August B. Hollingshead, Ph.D., deals with some of the interesting results of the Yale studies on the prevalence of treated cases of mental disorder in relation to factors of age, sex, socioeconomic class, and type and duration of treatment.

The next paper by Orville G. Brim, Jr., Ph.D., is an outstanding contribution. It is a critical review of recent studies evaluating the effects of programs of education in human development which have been given to parents, to teachers, and to children. Brim shows that there is little satisfactory evidence that the changes measured in the 50 studies under review have been associated with any improvement in the mental health of the children, which was the goal of the educational programs, and that it is quite possible that these changes may even have had harmful effects on certain children. He proposes an approach which will lead to better research in this area.

The book ends with an excellent paper by Marian Radke Yarrow, Ph.D., on future trends in research in the field of preventive psychiatry. She makes a plea for abandoning oversimplified conceptual models and for accepting the challenge of designing research to study patterns of multiple complex interacting variables.

GERALD CAPLAN

ADVANCES IN TUBERCULOSIS RESEARCH, VIII—BCG—Edited by Hans Birkhauser and Hubert Bloch. Springfield, Ill.: Thomas (301–327 East Lawrence Ave.), 1957. 316 pp. Price, $11.00.

To anyone not already familiar with the major publications on BCG, this book provides an opportunity for rapid review of the opinions, often diametrically opposed, held by some of the most distinguished authors in the field. In addition to the editors, chapters have been contributed by Dahlstrom, Huet and van Deinse, Rosenthal, Wells, Birkhaug, de Assis, Aronson, Mande, Gernez-Rieux and Tacquet, Horwitz and Meyer, Myers, and Mitchison, each accompanied by an extensive list of references.

The difficulties in BCG research are well stated by Bloch in the first chapter and it is obvious throughout the book that these have not been overcome. One major trouble touched on too briefly is the wide variation in BCG strains.

Sections of the book deal with the preparation of vaccines, methods of vaccination, results as observed and interpreted by the different authors, vaccinotherapy, and prophylactic chemotherapy. The more esoteric aspects of research in tuberculosis immunity are largely untouched.

The book is well edited, attractively printed, and useful as a reference, but

should be considered as a compilation of viewpoints rather than as a critical review. FLOYD M. FELDMANN

NONGROUP ENROLLMENT FOR HEALTH INSURANCE. A STUDY OF ADMINISTRATIVE APPROACHES OF BLUE CROSS PLANS—By Sol Levine; Odin W. Anderson; and Gerald Gordon. Cambridge, Mass.: Harvard University Press, 1958. 171 pp. Price, $5.00.

This is two books; the obvious one that was planned by the authors, and the hidden one that emerges on reflection.

The authors report the experience of Blue Cross Plans with enrollment of the nongroup population—the farmers, the self-employed, the aged, the temporarily unemployed, and those in employee groups too small to qualify for group enrollment—an estimated total of 56 million people.

The report begins with a national review of this major problem confronting health insurance. (Although the pertinent activities of commercial insurance plans are discussed, no mention is made of the extensive experience of the consumer cooperative plans with individual enrollment.) Then follows the details and evaluation of the six main methods used by Blue Cross Plans to enroll the nongroup population.

The information was obtained by intensive studies of five specially selected Blue Cross Plans and by a mail questionnaire returned by all Blue Cross Plans. It consists primarily of opinions of plan officials and of descriptive facts. The need for analytical facts is acknowledged by the authors.

The information is presented in the clear, well organized, and monotonous fashion so typical of this type of report. As little else is available about the subject, this report is must reading for the executive, sales, and public relations staffs of all health insurance programs.

Of great general significance is the hidden book, a description of the agony of nonprofit health insurance torn between the financial imperatives of public service and competitive business.

The differing philosophies of the Blue Cross Plans, one of several variables in the stated text, is the theme of the implied text; and the problems of nongroup enrollment—ranging from experience rating to using volunteer solicitors—indicate the alternate solutions to the basic dilemma. WALTER J. LEAR

THE NEUROSES AND THEIR TREATMENT—Edited by Edward Podolsky. New York, N. Y.: Philosophical Library (15 East 40th Street), 1958. 555 pp. Price, $10.00.

This book is a collection of previously published papers by some forty authors, culled from fifteen medical journals and dealing, as its title states, with the neuroses and their treatments. Neuroses are defined by the editor, after consideration of some of the definitions available, as "conditioned anxiety reactions" which will persist until "overcome by relevant, emotional retraining processes."

Although not specifically subdivided in terms of topics there are several central themes. Eight papers, for instance, deal with neuroses in infancy and childhood. A group of articles is concerned specifically with the psychosomatic, experimental, and physiological aspects: Allergy and Psychoneuroses, Frank C. Metzger; Coexisting Organ Neuroses: A Clinical Study, Peter L. Giovacchini; Chronic Anxiety Symptomatology, Experimental Stress, and HCl Secretion, George F. Mahl and Eugene B. Brody; Experimental Studies on Anxiety Reactions, Thomas H. Holmes and Herbert S. Ripley.

Another group of papers deals with the effects of different drugs (Treatment of Anxiety States with Meprobamate, Miltown), Walter A. Osinski; sedatives; carbon dioxide treatment; and lobotomy. There are papers concerned with specific conditions (A Type of Post Partum

Anxiety Reaction, Murray de Armond); and those relating to peculiar vulnerability at certain ages (Emotional Problems of the Middle-Aged Man, Otto Billig and Robert Adams; The Addition of Chlorpromazine to the Treatment Program for Emotional and Behavior Disorders in the Aging, Benjamin Pollack). Some authors are concerned with more theoretical problems (The Meaning of Anxiety, Edward Podolsky), or with very practical and much needed assessments such as the evaluation of the results of psychotherapy (Evaluation of Psychotherapy, with a Follow-up Study of 62 Cases of Anxiety Neurosis, Henry H. W. Miles, Edna L. Barrabee, and Jacob E. Finesinger).

As in all edited editions of previously published material, the merit lies in the easy availability of related subject matter unlikely to be unearthed by the average reader. What is much missed in this publication are the dates of all the papers, for it is impossible to get a time perspective without consulting the original journals. Also missing are the references and bibliographies available in the originals. MOLLY HARROWER

PRESCRIPTION FOR SURVIVAL—By Brock Chisholm. New York, N. Y.: Columbia University Press (2960 Broadway), 1957. 92 pp. Price, $2.50.

In four short essays the former director general of the World Health Organization skillfully assembles and entertainingly presents observations on mental hygiene, child training, human relations, American foreign relations, the United Nations, the World Health Organization, and other areas of modern thought and activity relevant to today's problem of assuring survival of the human race, now that man has, for the first time as far as we know, the power to destroy himself.

In spite of the wide range of the author's observations, they uniformly focus on the need for us (that is North Americans) to understand and get along with people of other cultures. He has successfully created a delightful popular treatise which at the same time is an essential primer for all who undertake to change other people's habits and patterns of life. Since many of the ideas expressed are now in the public domain, it is excusable, in a work of this kind, to omit credit to those authors (Eric Fromm, for instance) on whose writings he has drawn. Though much of what Dr. Chisholm says has been said elsewhere, he says it with a fresh mellow humor, and the things he says need saying again, and again, and again—in all languages.

One should not be misled by the forbidding title. It does not reflect the charming personality of the book's content, which is actually less of a prescription than a diagnosis. He points out that we must change our beliefs, extend our imaginations (called "brain storming" on Madison Avenue) and be ready to remake old institutions which were designed to deal with ancient conditions.

Now, if some equally brilliant, learned, and articulate modern Asian or African writer would compose similar persuasive essays for his people, pointing out how they could better understand us (the North Americans again) and the need for changing some of the customs and habits which are frozen into the manifold cultures of Asia and Africa, cooperation for survival might be even further advanced. Cooperation is after all a two-way street.

HOMER N. CALVER

PUBLIC HEALTH NURSING PRACTICE—By Ruth B. Freeman (2nd ed.). Philadelphia, Pa.: Saunders (West Washington Square), 1957. 435 pp. Price, $5.00.

This book can be recommended to all educators interested in public health. While the book was intended primarily as a guide for nurses, it should give

much practical help to health educators, social workers, schools of nursing, and schools of medicine where preventive medicine is emphasized.

The book is concerned with the changing role of the nurse in public health. It discusses such factors as new developments in the treatment of diseases, such as new drugs for cancer, the Salk vaccine, tranquilizing drugs for mental illness, fluoridation of water supplies, etc.

There is also an excellent discussion of such factors influencing public health as our aging population, increasing mobility of population, retirement committees, suburbanization, large unit organization in labor and agriculture, and in the acceptance of governmental planning on a large scale.

The book is divided into five sections, each section having a full list of suggested readings related to the content of the unit. The section on the pattern of public health nursing will enable the nurse to keep reasonably abreast of new developments in public health nursing. The section on services to individuals and families will help the nurse to establish needs and goals for family health service and how best to meet those needs.

Other sections deal with services in schools, clinics, and in occupational health programs. A chapter on participation in agency and community planning will help both the nurse and the social worker in organizing work with committees and citizen groups.

While the intent of the book is to provide basic knowledge that a public health nurse needs in order to carry out a successful health program, it can also serve as a guide to other workers from agencies interested in the social changes now taking place in our family and community structure.

The book is a completely rewritten and revised edition of Miss Freeman's earlier textbook. BLANCHE R. SPEED

CITY AND SUBURBAN HOUSING—Edited by Poyntz Tyler (Reference Shelf, Vol. 29, No. 6). New York: Wilson (950–972 University Ave.), 1957. 190 pp. Price, $2.00.

This book consists of a series of reprints, with some abridgment, of articles from many publications dealing with contemporary problems of housing. These articles are from such magazines as House and Home, U. S. News and World Report, Newsweek, Fortune, and Architectural Forum.

The editor has conveniently divided the book into three major parts, one dealing with public and private housing, another with problems relating to specialized and minority housing, and the last in the city versus housing in the suburbans.

Of particular interest to public health workers are the four articles on housing for the aging population, especially the article by Albert M. Cole, administrator of the House and Home Finance Agency.

Public housing comes under discussion in several well written articles.

This book is an important volume for any of the public health workers who are interested in the contemporary health problems relating to housing and redevelopment.

At the end of the book there is a very complete and comprehensive bibliography of recent books and articles on the subjects discussed in the text.

ERIC W. MOOD

PRE-EMPLOYMENT DISABILITY EVALUATION—By William A. Kellogg. Springfield, Ill.: Thomas (301–327 East Lawrence Avenue), 1957. 155 pp. Price, $10.50.

This book apparently embraces the pre-employment examination procedures developed by the author while he was associated with a large aircraft factory in California.

A statement on the dust jacket says that the book "briefly describes the various diseases, conditions and disabilities encountered in the examination for

employment. It states whether an individual with a given condition should be approved, rejected or approved with restrictions. . . ." This is an accurate statement, and the general philosophy of the author seems to be that whenever there is any doubt, the applicant should be rejected principally to protect the financial interests of the employer.

As "an aid in standardizing the preemployment examination," which is claimed for the book, it might be of value particularly to a plant where satisfactory standardization has not been achieved. Some of the record forms could be useful, although others would require modification. A practical feature of the book is found in the perforated pages which can be removed for filing in a loose-leaf binder.

Such suggestions as examining female applicants without having them disrobe and the categorical rejection of cafeteria workers with a positive blood serology are not in accord with modern practice. The table of normal values for blood counts is apparently taken from outdated textbooks. The use of the term "disability" rather than "physical impairment" is obsolescent.

Perhaps the most unusual feature is the section giving detailed instructions for examinations as conducted by a nurse, including advice on what to do "if abnormalities of the sounds on listening to the heart and lungs are recognized by the nurse." On the other hand, the nurse is advised to avoid the use of the otoscope.

LEONARD J. GOLDWATER

CURRENT SOCIAL RESEARCH: AN INVENTORY—Compiled by Community Research Associates, Inc. New York: (124 E. 40 St.), 1957. 205 pp. Limited distribution, free.

A major objective of this volume is to provide a "springhead for discussion" by persons responsible for granting research funds in fields related to interests of the Social Security Administration and for persons engaged in planning such research. The Inventory is designed specifically to help in the development of plans for the administration of Section 110, Social Security Act.

There are descriptions of 372 projects. Approximately one half of these represent research and demonstration in direct services in the field of rehabilitation, health, welfare, and education; one-fourth deal with program and administration research and one-fourth are concerned with basic behavioral and socioeconomic studies.

In a brief commentary the authors stress the desirability of examining "concentrations and gaps" in research as a basis for future planning. Another major function which this and similar inventories can fill is to guide research workers in identifying research by others which is related to their own and to facilitate communication among workers with parallel or similar interests.

This volume will be a valuable reference tool for research workers in health, welfare, and education who want to know where to start in learning what others are thinking about or studying.

ROBERT STRAUS

DETERMINATION OF Sr^{90} AND Ba^{140} IN BONE, DAIRY PRODUCTS, VEGETATION, AND SOIL—By H. L. Volchok; J. L. Kulp; W. R. Eckelman; and J. E. Gaetjen. New York: Annals of the New York Academy of Sciences (2 East 63rd St.), Vol. 71, Art 2, pp. 293–304, 1957. Price $.75.

This article describes a method for the determination of Sr^{90} and Ba^{140}, in bone, dairy products, vegetation, and soil based upon measuring the activity of their daughters, Y^{90} and La^{140}, respectively. The material in the paper is well organized and some of the steps involved in the isolation of Y^{90} from the products have been critically evaluated. Data have been presented to show

that the procedure is sufficiently accurate and reproducible for measuring low-level activity, especially Sr^{90}. The method has not been critically evaluated for Ba^{140} determination and, therefore, it is not clear to the reviewer whether the author's assumption was that the accuracy and reproducibility of Ba^{140} was similar to that of Sr^{90}.

J. E. CAMPBELL

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

BODY, MIND, AND SUGAR. E. M. Abrahamson and A. W. Pezet. New York: Holt, 1957. 206 pp. Price, $2.95.

THE COMMUNITY—AN INTRODUCTION TO A SOCIAL SYSTEM. Irwin T. Sanders. New York: Ronald Press, 1958. 431 pp. Price, $6.00.

DIAGNOSIS AND TREATMENT OF DISEASES IN THE TROPICS. H. C. Trowell (3rd ed.). Baltimore, Md.: Williams and Wilkins, 1956. 332 pp. Price, $3.75.

DIRECTORY FOR EXCEPTIONAL CHILDREN. EDUCATIONAL AND TRAINING FACILITIES (3rd ed.). Boston, Mass.: Porter Sargent, 1958. 320 pp. Price, $6.00.

DISASTER PROCEDURE MANUAL. Martinez, Calif.: Contra Costa County Health Department, 1958.

FAMILY CASEWORK IN THE INTEREST OF CHILDREN. REPORT OF AN INTERDISCIPLINARY CONFERENCE JOINTLY SPONSORED BY THE FAMILY SERVICE ASSOCIATION OF AMERICA AND THE ELIZABETH MCCORMICK MEMORIAL FUND. New York: Family Service Association of America, 1958. 126 pp. Price, $1.50.

FOLK MEDICINE. A VERMONT DOCTOR'S GUIDE TO GOOD HEALTH. D. C. Jarvis. New York: Holt, 1958. 182 pp. Price, $2.95.

GROUP PROCESSES. TRANSACTIONS OF THE THIRD CONFERENCE OCTOBER 7–10, 1956. Edited by Bertram Schaffner. New York: Josiah Macy, Jr. Foundation, 1958. 328 pp. Price, $4.00.

HEALTH TEACHING IN SCHOOLS. FOR TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS. Ruth E. Grout (3rd ed.). Philadelphia, Pa.: Saunders, 1958. 359 pp. Price, $4.75.

HEATING, VENTILATING, AIR CONDITIONING GUIDE 1958. VOL. 36. New York: American Society of Heating and Air-Conditioning Engineers, 1958. 1272 pp., plus catalog data section; 503 pp. Price, $12.00.

INTERNATIONAL NOMENCLATURE OF YAWS LESIONS, AN. C. J. Hackett. World Health Organization. New York: Columbia University Press, 1957. 103 pp. Price, $4.00.

INTRODUCTORY SOCIOLOGY. Paul H. Landis. New York: Ronald Press, 1958. 726 pp. Price, $6.50.

MEDICINE AND MAN (A Mentor Book). Ritchie Calder. New York: New American Library, 1958. 256 pp. Price, $.50.

NUTRITION REVIEWS. Vol. 15, Numbers 1–12. January–December, 1957. New York: Nutrition Foundation, 1957. Price, $4.00.

POLYSACCHARIDES IN BIOLOGY. TRANSACTIONS OF THE SECOND CONFERENCE APRIL 25–27, 1956. Edited by Georg F. Springer. New York: Josiah Macy, Jr. Foundation, 1958. 245 pp. Price, $5.00.

PREGNANCY AND BIRTH (Signet Key Book). Alan F. Guttmacher. New York: New American Library, 1958. 255 pp. Price, $.50.

SELECTED SCIENTIFIC PAPERS. Instituto Superiore Di Sanita, Di Roma. New York: Interscience Publishers, 1957. Part II 239–340 pp. Price, $8.10. Part III 345–548 pp. Price, $8.10.

TUBERCULOSIS IN WHITE AND NEGRO CHILDREN. VOL. I—THE ROENTGENOLOGIC ASPECTS OF THE HARRIET LANE STUDY. Janet B. Hardy. 122 pp. Price, $7.50. Vol. II—THE EPIDEMIOLOGIC ASPECTS OF THE HARRIET LANE STUDY. Miriam E. Brailey. 103 pp. Price, $4.50. Cambridge, Mass.: Harvard University Press, 1958.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Raymond S. Patterson, Ph.D.

Return to First Principles—Two good papers on the control of virulent, antibiotic-altered, resistant staphylococcal infections in hospitals are of far wider interest than just to the hospital and nursing administrators to whom they are addressed. True cleanliness, not indiscriminate antibiotic medication, is the control measure suggested.

ADAMS, R. Prevention of Infections in Hospitals (and) HARDER, H. I. A Program to Control Staphylococcal Infections. Am. J. Nursing 58, 3:344 (Mar.), 1958.

For Every Third Newborn—The work of the 80-odd child health stations of the New York City Health Department is described in useful detail. In addition to traditional programs—periodic appraisal, immunization, parent counseling and referral to treatment agencies—these stations have embarked upon such projects as polio immunization, screening for handicaps, child safety (mothers), group discussions, integration of curative with preventive services, and tuberculin patch testing.

BLEIBERG, N. Reviewing Today's Child Health Conference in New York City. New York State J. Med. 58, 5:675 (Mar. 1), 1958.

Sound Beginnings—A keynote speech at an initial public health working conference in the Near East, this presentation elects to dig down to first principles. When starting practically "from scratch" what would be the essential and elementary aims of a public health program to be first settled upon? And what are the basic mechanisms by which these aims might be achieved? The answers to these questions are not so obvious that they may be lightly formulated. You will be interested in, and stimulated by, this effort.

CALVER, H. N. A Better World Through Public Health. J. Med. Liban. p. 175 (May), 1957.

We Need More of This—Three local health officers tell of their activities in developing new programs within the existing community organization. The first story concerns a rehabilitation service for patients with long-term illnesses. The second concerns a joint nursing home supervision program covering research, survey, law enforcement and operator training aspects. The third is about a time-limited home safety demonstration that was eventually integrated into the regular departmental program.

CHOPE, H. D. Rehabilitation in San Mateo; DOMKE, H. R. Improving Patient Care in Nursing Homes; (and) BISSELL, D. M. Home Safety in San Jose. Pub. Health Rep. 73, 1:42–53 (Jan.), 1958.

Guiding Principles—Mass radiography of the chest is still a fundamental technic in tuberculosis detection; it should be applied selectively to high-risk groups; all survey programs should have state and local departmental approval; initial screening of low-risk groups with the tuberculin test should be considered; every community should evaluate its program frequently in order to use the x-ray survey at its greatest efficiency; and adequate safeguards must be erected.

COMMITTEE STATEMENT. X-ray Case-Finding Programs in Tuberculosis. Pub. Health Rep. 73, 1:83 (Jan.), 1958.

Shades of Jules Verne—Asian influenza went round the world in nine months. The shortening time needed for world-wide spread reflects the speed and extent of modern travel. The story

is told in a month-by-month recounting.

DUNN, F. L. Pandemic Influenza in 1957. J.A.M.A. 166, 10:1140 (Mar. 8), 1958.

Good Question—Nine important papers on occupational health direct attention to this swiftly changing aspect of public health. Only the second paper can be annotated here. It invites health officers to take a fresh look at their own occupational health activities from the viewpoint of their relation to the whole community program. It lists the pertinent questions the health officer might ask himself in taking this fresh look, and it ends with this: is he setting a good example by providing a productive program for his own departmental staff?

GERBER, J. H. Small Plant Health Services and the Health Officer (and 8 related papers). Pub. Health Rep. 72, 12:1050 (Dec.), 1957.

To Smoke or Not?—Among the 4,000-odd "regular" cigarette smokers who died during this 44-month continuing study, there was an excess of 1,783 deaths over the number that would have occurred had the age-specific death rate been the same as that for nonsmokers. Mortality rates were highest among the smokers of the largest numbers of packs per day. There was no important increase in death rates among those who smoked cigarettes only occasionally nor was there any increase in those who smoked no more than four cigars or 10 pipefuls of tobacco per day.

HAMMOND, E. C., and HORN, D. Smoking and Death Rates—Report on Forty-Four Months of Follow-Up of 187,783 Men. J.A.M.A. 166, 10:1159 (Mar. 8), 1958.

Toward Full Partnership—Disillusioning experiences in some of the pioneering ventures in organizing mental health clinics as part of the public health administrative set-up—or apart from the local health service—suggest a reappraisal of the public health approach to mental health. The health department has an essential role (and stake) in community mental health, but a strong health department is called for if such a part is likely to be played effectively.

HANLON, J. G. The Role of the Mental Health Service in the Local Health Department. Pub. Health Rep. 72, 12:1093 (Dec.), 1957.

Radiation Hazard—Independently, and by different routes, British and American committees came to much the same conclusions—that it is unwise to subject people generally to an average of more than 10 r. of ionizing radiation as a total accumulation during the years up to age 30. "There can be no doubt, in view of the evidence now on hand, that every effort must be made to minimize human exposure to radiation," the writer of this special article concludes.

NEEL, J. N. The Delayed Effects of Ionizing Radiation. J.A.M.A. 166, 8:908 (Feb. 22), 1958.

Streptococcus Hunters—For three years a program to detect and treat streptococcal infections has been under way in the Caspar (Wyo.) primary schools. It includes daily inspections and exclusion of children harboring beta-hemolytic streptococci (until antibiotic therapy has been begun). It has proved practical and appears to lower the incidences of rheumatic fever and acute nephritis. As a community educational effort it has also proved productive.

PHIPPS, B., et al. (Clinical Aspects), and BECKER, D., et al. (Technical Aspects) The Caspar Project—An Enforced Mass-Culture Streptococcal Control Program. J.A.M.A. 166, 10:1113 (Mar. 8), 1958.

A Challenge—In general we know who are highly susceptible candidates for coronary disease and hypertension, says the author. Now is the time to start the task of prevention. By selecting susceptible subjects, and dividing them

into test and control groups, the way is clear to appraise methods calculated to postpone or prevent these diseases.

THOMAS, C. B. Familial and Epidemiologic Aspects of Coronary Disease and Hypertension. J. Chronic Dis. 7, 3:198 (Mar.), 1958.

A Progress Report—Low-fat diets, supplemented with certain vegetable oils, can lower cholesterol levels by promoting the excretion of the offending substance. Unfortunately, we do not know enough about the relationship of fatty acids and cholesterol balance to permit the formulation of a fatty-acid dietary pattern. Recent and alarming assumptions about the relation of atherosclerosis to fat intake must be taken with the proverbial grain of salt until further epidemiologic studies can be made. This brief note is not enough—please read the entire paper.

VAN ITALLIE, T. B. International Research in Atherosclerosis. J. Am. Dietet. A. 34, 3:248 (Mar.), 1958.

Economics of Rheumatic Fever—Though there has been a definite decline, since 1936, in the frequency of rheumatic fever recurrences (in New York City) there has been no significant decline in the rate among children in the poorest environmental group. An improved standard of living during the past two decades suggests itself as the important factor in the lowered incidence. No overall decline is evident following the institution of antibiotic therapy in 1952.

WILSON, M. G., et al. The Decline of Rheumatic Fever. J. Chronic Dis. 7, 3:183 (Mar.), 1958.

Neonatal Mortality—Ten years of lying-in hospital experience seem to point to two factors that may further improve early infant death rates: (1) broad professional educational services reaching into all accessible regional hospitals; and (2) elimination of maternity services in hospitals not sufficiently large to provide and support the requisite facilities, services, and skills.

YANKAUER, A., and ALLAWAY, N. C. An Analysis of Hospital Neonatal Mortality Rates in New York State. Am. J. Dis. Child. 95, 3:240 (Mar.), 1958.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Dis. Child. (American Journal of Diseases of Children), American Medical Association, 535 N. Dearborn St., Chicago, Ill.
Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.
J. Am. Dietet. A. (Journal of the American Dietectic Association), 620 N. Michigan Ave., Chicago, Ill.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.
J. Chronic Dis. (Journal of Chronic Diseases), C. V. Mosby, 3207 Washington Blvd., St. Louis, Mo.
J. Med. Liban. (Lebanese Medical Journal), Beyrouth, Liban.
New York State J. Med. (New York State Journal of Medicine), 292 Madison Avenue, New York 17, N. Y.
Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

NEWS FROM THE FIELD

WHO News

WHO's Responsibility in Drugs

Following the publication of the "International Pharmacopoeia with Specifications" for the examination of a large number of drug preparations, a WHO Study Group on the Use of Specifications met late in 1956 to consider the collection of necessary information and the improvement of laboratory methods of examination and problems connected with the hundreds of new medicinal substances.

The report of this group, recently issued, recommends that WHO should establish a service for collecting, examining, and collating reference data on the new preparations and distributing them to member states, to the Expert Advisory Panel on the International Pharmacopoeia, and to other specialists and control laboratories. Otherwise control systems in the various countries cannot always be adequately applied in view of the complexities of the facts and the problems. There are detailed recommendations for the organization of a national control authority. Suggestions for training of personnel and for equipment in the first stages of a pharmaceutical control laboratory are included.

The U. S. Commissioner of Food and Drugs, G. P. Larrick, was a member of the 11-man study group. The report is available from the Columbia University Press, 2960 Broadway, New York 27; 30 cents.

Goiter Endemic Round the World

"Endemic Goitre" is the subject of Vol. 18, Nos. 1–2 of the WHO Bulletin. Nearly two-thirds of its 276 pages are devoted to prevalence and geographic distribution, including a bibliography of nearly 1,000 items covering publications of some 100 countries and territories. The remainder of the volume is devoted to scope of the problem and related health conditions, iodine metabolism and physiological aspects, classification of goiter and technic of surveys, therapy and prophylaxis, and iodized salt. Each chapter has an extensive bibliography.

As to prevention Dr. David Marine's aphorism is quoted as practically the last word, "Simple goitre is the easiest of all known diseases to prevent. . . . It may be excluded from the list of human diseases as soon as society determines to make the effort." That society has not yet made the effort is proved by the 174 pages devoted to prevalence and geographic distribution. It is recognized, however, that "in practice the provision of supplementary iodine presents certain technical problems." Columbia University Press, 2960 Broadway, New York 27; $4.

Malaria Reduction in Mexico

A 1957 figure of 3,000 deaths from malaria in Mexico in contrast to more than 30,000 annually in former years is credited to the antimalaria campaign carried out jointly by WHO and the Mexican Ministry of Health. Dr. Ignacio Morones Prieto, Mexican director of health, in recently reporting these figures, further indicated that incidence of the disease was 150,000 in 1957 contrasted with 2.5 million in earlier years.

Halloween Nets a Million Dollars

Two million children in 8,500 United States communities collected more than one million dollars for UNICEF through Halloween "trick and treat" programs. In presenting the first three-quarters of a million dollars to UNICEF on its 11th birthday, Mrs. Guido Pantaleoni, Jr., president of the U. S. Committee for UNICEF, said "The boys and girls re-

sponsible for this gift have made a symphony of sound out of the millions of doorbells rung on Halloween—a symphony which will echo through the coming year in many far corners of the earth. For what can be more beautiful than a symphony of bells that echo back as happy laughter of children made whole and well."

Definition Also Helps Prevention

"Uniform Definitions of Home Accidents" is now being distributed by the Public Health Service for the Conference on Uniform Definition of Home Accidents. This manual is for use during a trial period following which it is planned to modify the definitions as dictated by experience and to prepare a classification scheme.

The Conference on Uniform Definitions of Home Accidents, which developed the manual, is sponsored jointly by the American Public Health Association, National Safety Conference, and Public Health Service. These have also endorsed the present manual which it is hoped will be endorsed by other national organizations after a period of field trial.

The need for such a manual was first pointed out by the Subcommittee on Home Accident Prevention of the American Public Health Association. A study of nomenclature showed a variety of terms in use without uniformity of meaning which made comparability impossible and sometimes even made it difficult for technicians to communicate. The subcommittee therefore requested the National Safety Conference and the Public Health Service to co-sponsor with it a "National Working Conference on Home Accident Nomenclature."

The Conference was held in April, 1957, following an earlier planning meeting sponsored by the three organizations. At the April meeting 17 voluntary agencies and three divisions of the Public Health Service were represented by 25 persons, assisted by seven special consultants. Fay M. Hemphill, Ph.D., represented the American Public Health Association; Berwyn F. Mattison, M.D., the Association of State and Territorial Health Officers; James L. Goddard, M.D., and Albert Iskrant, the Accident Prevention Program, Public Health Service; O. K. Sagen, Ph.D., the National Health Survey Program; and Halbert L. Dunn, M.D., I.M., Moriyama, Ph.D., and Evelyn H. Halpin, Ph.D., the National Office of Vital Statistics. To the last-named organization (Washington, D. C.) should be sent any questions, comments, or suggestions regarding the definitions.

The acting secretary of the Conference is Thomas Fansler of the National Safety Council to whom should be addressed queries about the structure of the Conference and its aims beyond the publication of the manual. National Safety Council, Chicago 11.

The manual is available from the Gov. Ptg. Office, Washington 25, D. C.; 30 cents.

American Women Doctors Visit USSR

Six American women doctors are on a one-month tour of medical institutions in the Soviet Union. This represents a return visit to that of six Russian women scientists who made a tour of medical institutions in the United States in October, 1957. The exchange agreement was made between the U. S. Department of State and the Soviet Union. Arrangements have been made by the National Academy of Sciences in cooperation with the Rockefeller Foundation and the American Medical Women's Association. A member of the last-named organization accompanied the Russian women on their United States tour last fall.

Heading the delegation is Helen B. Taussig, M.D., associate professor of pediatrics, Johns Hopkins University,

who won an American Public Health Association Lasker Award for her contributions to the treatment of cardiac diseases in children. Others are Leona Baumgartner, M.D., New York City health commissioner and president-elect of the APHA; Esther Marting, M.D., radiologist, University of Cincinnati School of Medicine, and past president of the American Medical Women's Association; Thelma B. Dunn, M.D., investigator of the pathology of cancer, National Institutes of Health; Jean Henley, M.D., head of the Department of Anaesthesiology, Francis Delafield Hospital, College of Physicians and Surgeons, Columbia University; and Margaret H. Sloan, M.D., in charge of advisory services to the National Blood Program, National Academy of Sciences-National Research Council.

Martha M. Eliot Infirmary Dedicated

The Children's Center of Laurel, Md., dedicated its Martha M. Eliot Infirmary on March 9. At the dedication exercises, speaking on Community Health Services for Mentally Retarded Children, Dr. Eliot said in part, "I am glad to have my name associated as it is here with the world-wide concept of the dignity and worth of each human person, which is stated in the United Nations charter, and with our own keen sense of public responsibility to care for those who cannot care for themselves. You could not have done me greater honor." She emphasized the need for physicians and other professional workers "to have a fundamental knowledge of child growth and development . . . and of deviations from the normal."

The Children's Center is devoted to the care and treatment of mentally retarded children in the District of Columbia area, ranging from those who are able to assume a limited but responsible role in society to those who are bedridden. Here also an educational program for parents and foster parents of the mentally retarded is carried on through which the parents receive instruction in the home care of the less severely retarded to help them adjust as nearly as possible, to a normal home life.

New Sanitary Engineering Programs

New programs in sanitary engineering have been announced by the University of Michigan School of Public Health and by Rensselaer Polytechnic Institute. Michigan's is a one-year graduate course in radiological health to afford broad and intensive training for engineers and scientists for positions of responsible leadership in professional practice, administration, and research—namely, to train the health physicist. A bachelor's degree in engineering or science is a prerequisite with a major in chemistry, physics, mathematics, biology, or engineering, and including mathematics through one year of calculus and one year of physics. A number of Atomic Energy Commission or Public Health Science fellowships are available. Further information from University of Michigan School of Public Health, Ann Arbor.

The Rensselaer Polytechnic program is an undergraduate curriculum in environmental engineering, providing an opportunity "to prepare for careers in engineering aspects of world wide control of health and conservation of natural resources." More emphasis is placed on mathematics and the fundamental sciences than in the conventional four-year engineering programs. This institution already has graduate courses in environmental engineering and related sciences. Some scholarships for undergraduates and fellowships or assistantships for graduates are available. Director of Admissions, Rensselaer Polytechnic Institute, Troy, N. Y.

Aids Nutrition in Central America

The W. K. Kellogg Foundation has made a five-year grant of $185,000 to the Pan American Sanitary Bureau to promote the wide application of the nutritional findings gained through a decade of research at the Institute of Nutrition of Central America and Panama. The Institute was originally established by PASB with the aid of the Kellogg Foundation.

During the decade scientific studies and dietary habits in the six countries have been studied, as well as the nutritional values of the native foods. Wide presence of intestinal parasites, malaria, and anemia were found, and endemic goiter in certain regions. Inadequate food resources, the research indicates, are responsible for the markedly slower growth and maturity and smaller physical stature and weight for Central Americans than for peoples in areas with more adequate resources.

The new five-year program will help the nations' health, education, and agriculture leaders to apply the findings. Demonstration projects in each country will be used to tell the story to people. Teachers will be helped to introduce nutrition concepts into the school program. In this new program, as in its earlier phases, each nation will make annual appropriations for the activities; the centralized effort makes possible laboratories and a corps of nutrition workers beyond the resources of any one country.

Rice Must Now Be Enriched

The Food and Drug Administration has announced a new standard for nutritionally improved rice. Hereafter rice that is labeled "enriched" must also be labeled to "specify the amounts of enriching ingredients added, the proportion of the minimum daily requirement that each ingredient supplies and how to cook the rice to avoid losing vitamins." Each pound of rice must "contain 2 to 4 milligrams of thiamine, 16 to 32 milligrams of niacin, and 13 to 26 milligrams of iron."

A requirement for the addition of riboflavin has not been put into effect pending a hearing on industry's objections to this on other than nutritional grounds.

A New Division in Harvard

A new Division of Environmental Hygiene in the Harvard School of Public Health is bringing together research and teaching activities of specialists in the fields of radiation hazards, air pollution, accident prevention, and industrial hygiene and works in close consultation with the Harvard Laboratories of Sanitary Engineering.

The division, according to John C. Snyder, M.D., dean of the school, gives recognition to new public health problems of "critical importance" associated with the peacetime uses of nuclear energy, growing air pollution, with increasing industrial accident potentials, and with accidents involving both ground and air transportation. These and other developments are annually creating more problems that must be attacked by engineers, psychologists, physiologists, and other medical scientists working together.

The director of the division, James L. Whittenberger, M.D., lists the two immediate objectives as the study of man's physiologic responses and adaptations to the particular stresses encountered in his physical environment and aiding man in adapting his environment to make the best use of his physiologic capacities.

Health Department and Urban Renewal

In recognition, as it were, of the importance of housing to health the

Texas State Health Department is the Texas Planning Agency with relation to cities under 25,000 population and the federal Urban Renewal and Slum Clearance Act. Since the Texas Legislature in May, 1957, made the Department the official planning agency for the administration of urban renewal advance planning funds to such cities, 18 have applied for planning assistance under the program.

Rehabilitation Work Conference

The Institute for Crippled and Disabled in New York City announces a three-week Work Conference for professional persons on "Developing Concepts in Community Rehabilitation Services." The subject will be how to integrate a community's facilities into a working rehabilitation program for the disabled. The program will consist of seminars, lectures, problem clinics, and demonstrations. The course is given in affiliation with the College of Physicians and Teachers College of Columbia University, June 2–20.

Fee for the Conference is $115 for those wishing graduate credit; $100 for others. A limited number of stipends are available for subsistence and for round-trip travel to New York.

A brochure of information and application forms from Marguerite Abbott, Director of Professional Education, Institute for Crippled and Disabled, 400 First Ave., New York 10.

Water Works Association Officers

Lewis S. Finch, vice-president and chief engineer of the Indianapolis Water Company, previously elected, took office as president of the American Water Works Association at the annual conference in Dallas in April. Other new officers are:

Vice-President, Lauren W. Grayson, chief engineer and general manager, Public Health Department, Glendale, Calif.

Treasurer, William J. Orchard, former general manager, Wallace & Tiernan, Belleville, N. J. (reelected)

Public Health Course for Dentists

The School of Hygiene and Public Health of the University of São Paulo, Brazil, is now giving a course in public health for dentists to prepare administrators for dental public health programs in the Latin-American republics. The curriculum includes general public health subjects, taught jointly to dentists, physicians, veterinarians, engineers, and specific dental subjects taught separately to the group of dentists.

Sixteen dentists from eight countries (Argentina, Brazil, Colombia, Costa Rica, El Salvador, Paraguay, Peru, and the Dominican Republic) are taking the course this year of whom eight are on WHO fellowships.

WHO provides advisory services, fellowships, and teaching materials; the Kellogg Foundation financial assistance, teaching equipment, and supplies; while the Special Public Health Service—the bilateral Point IV program in Brazil—participates principally in field training of students.

A New Type of Field Service

The State Charities Aid Association, a New York state-wide organization promoting citizen leadership for the improvement of health and welfare services in local communities and in the state, has established a Community Study Service. This new program will assist local citizen groups in gathering and analyzing essential data for improving community health and welfare services in relation to changing needs. The services will be available to the Association's 152 tuberculosis, heart, mental health, child adoption, and child welfare and adoption affiliates and other community groups. Director of the project is Roland L. Warren, Ph.D.,

former professor of sociology, Alfred University, and Co-director of the Alfred University area project involving 18 communities. Assistance from the Russell Sage Foundation makes the project possible.

Public Health Training Conference

The Public Health Service has called a national Conference on Public Health Training in Washington for July 28–30. In preparation the Service, through the Division of General Health Services, is getting information by questionnaire on professional workers—and their training—employed by state and local health departments.

About 100 persons are being invited to this conference representing schools of public health, medicine, dentistry, nursing, engineering, administrators and specialized staff, including training officers, of state and local health and allied departments and voluntary agencies, and of the Public Health Service. Berwyn F. Mattison, M.D., executive secretary of the American Public Health Association, will be chairman of the conference.

List of "Survival" Items Published

The Office of Defense Mobilization has released its list of essential items for survival following possible nuclear attack. "Survival" items are defined as those that would be required to sustain life at a productive level and without which over a period of time great numbers of people might die or have their health so seriously impaired as to imperil the national survival effort. The Health Supplies and Equipment, Food Groups, and Sanitation and Water Supply Items follow:

Health Supplies and Equipment

Pharmaceuticals—Acetylsalicylic acid, atropine sulfate tablets and injections, synthetic plasma volume expanders, digitalis and derivatives, oxygen, surgical detergents, lubricant (surgical), insulin, blood derivatives for shock therapy, water for injections, surgical antiseptics, antibiotics, barbiturates, sulfa drugs, cardiac and respiratory stimulants, oral electrolytes, local anesthetics, intravenous solutions for replacement therapy, morphine and substitutes, general anesthetics, alcohol.

Blood Collecting and Dispensing Supplies—Blood donor set, disposable, field; blood recipient set, disposable, field; blood collecting and dispensing containers; tube, blood collecting, vacuum; intravenous injection sets, blood grouping and typing sera.

Biologicals—Tetanus antitoxin, smallpox vaccine, gas gangrene antitoxin, yellow fever vaccine, diphtheria antitoxin, diphtheria and tetanus toxoids and pertussis vaccine, cholera vaccine, plague vaccine, rabies vaccine, antirabies serum, botulism antitoxin (Type A and B), tetanus and diphtheria toxoid, typhoid and paratyphoid vaccine, tetanus toxoid (A.P.), typhus (epidemic) vaccine.

Surgical Textiles—Bandage (gauze and muslin), cotton (USP), compresses (including burn dressings), bandage (plaster of Paris), cellulose (absorbent), first aid dressings, absorbent gauze, surgical mask and cap, gauze (packing abdominal), sanitary pads, abdominal pads, adhesive plaster, gauze pads, stockinette (surgical), cotton sheet wadding, white cotton gloves for burns.

Emergency Surgical Instruments and Supplies—Tracheostomy set, hypodermic needles, forceps (hemostat), forceps (tissue), forceps (dressing), holder (needle), surgical knife blades, surgical knife handles, general operating probe, bandage scissors, general surgical scissors, absorbable and nonabsorbable sutures, general operating retractor set, syringes (hypodermic Luer), Thomas leg splint, bone saw, rongeur, razor and blades for surgical preparation, surgical drape (plastic), surgical apron (plastic), cast cutting knife, rubber or plastic airway, penrose drain, duodenal tube, wire ladder splint, textile webbing, instrument tray, nonpneumatic tourniquet, urethral catheters, surgical rubber gloves, surgical needles, ether mask (inhaler Yankauer), stethoscope, obstetrical forceps, clinical thermometers, rubber or plastic tubing and connections.

Common Use Items—Surgical scrub brush, textile webbing splint buckle, litter, portable light source for surgery.

Food Groups

Milk Group—Milk in all forms and milk products. Important for calcium, riboflavin, protein, and other nutrients.

Meat Group—Meat, poultry, fish, eggs; also

dry beans, peas, nuts. Important for protein, iron, and B-vitamins.

Vegetable-Fruit Group—Dark green and yellow vegetables for vitamin A; citrus fruit or other fruit or vegetables for vitamin C; other fruits and vegetables, including potatoes.

Grain Products—Particularly enriched and restored whole grain cereals, bread flours, and meals; important for energy, protein, iron, and B-vitamins.

Fats and Oils—Including butter, lard, and margarine. Important for food energy; same for vitamin A and essential fatty acids. Sugars and Syrups—Food energy.

Sanitation and Water Supply Items

General Items—Trucks, up to five tons (25 per cent to be equipped with power takeoffs); truck tractors and trailers, including low bed; bulldozers; rigging tools (cable, rope, tackle, hoists, etc.); protective masks, clothing, helmets; self-reading dosimeters with chargers; low-range survey meter; high-range survey meter; dose rate and total dose calculators; warning signs (chemical, biological, radiological), high-sensitivity laboratory type equipment for counting, chemical agent detection kits (air, food, water).

Water Supply Material—Filter alum, ferric chloride, ferrous sulfate, chlorinated copperas, soda ash, hydrated lime, pulverized limestone; liquid chlorine and containers, high-test hypochlorites (70 per cent) (in drums, cans, ampules), chlorinated lime, iodine tablets (for individuals); diatomaceous earth, activated carbon.

General Supplies and Equipment—Pumps (hand, electric, gasoline, diesel) with appurtenances; chlorinators (gas and hypochlorite); mobile and portable pressure filters; welding equipment and supplies (electric and acetylene); well drilling equipment, including well tubing and well points; chemical feeders.

Storage and Transport Equipment—Tank trucks and trailers; tank railway cars; storage tanks (rigid, transportable); storage tanks (collapsible, portable); lyster bags.

Laboratory Equipment and Supplies—Ortho-Tolodine-Arsenite chlorine comparators with pH disc and reagents; membrane filter kits with filters and media.

Insect and Rodent Control—Insecticides: DDT technical grade powder and emulsifiable concentrate for spraying operations; DDT (10 per cent dust) as delousing powder; malathrion; solvents and emulsifying agents. Rodenticides: anticoagulant type. Equipment: hand dusters, plunger type; hand sprayers; compression sprayers; delousing outfits; aircraft spraying equipment.

NOTE: Three other categories were included in the survival item list released on February 7, 1958, by Office of Defense Mobilization: Body Protection and Household Operations, Light, Power and Fuels, and Emergency Housing and Lodging.

Correction

On page 352, March, 1958, of this Journal the first phrase of the fifth line of "Never Catching Up with Exploding Population" should read "is one for every 8,400 persons."

PERSONALS

RAYMOND D. ADAMS, M.D., chief of neurological services, Massachusetts General Hospital, Boston, has been appointed to the Board of Scientific Counselors, National Institute of Neurological Diseases and Blindness.

E. W. ARNOLD, M.D., has succeeded CARLE W. BEANE, M.D., retired, as health commissioner of Darke and Preble Counties, Ohio, headquarters in Greenville City.

J. LLOYD BARRON, C.E.,* sanitary engineer, National Biscuit Company, New York City, and APHA representative on ASA, has been reelected chairman, Construction Standards Board, American Standards Association.

HERMAN J. BENNETT, M.D., M.P.H.,* plant physician, International Business Machines Corporation, Poughkeepsie, N. Y., has been elected president, Dutchess County Mental Health Society.

JOHN J. BLOOMFIELD,* Sanitary Engineer Director, Public Health Service, and regional consultant in industrial hygiene, Institute of Inter-American Affairs, with headquarters in Lima, Peru, received the 1958 Annual Award of the American Industrial Hygiene Association for his contribution to the development of industrial hygiene programs in the United States and Latin America, at the 1958 Industrial Health Conference in Atlantic City, April 19–25, 1958, where he also gave the 20th Anniversary Address of the American Conference of Governmental Industrial Hygienists.

LT. COLONEL T. D. BOAZ, JR., M.C.,* formerly at Fort Sam Houston, is now chief, Department of Health Practices, Division of Pre-

* Fellow.

ventive Medicine, Walter Reed Army Institute of Research, Washington, D. C.

GATLIN R. BRANDON, M.P.H.,† former assistant director, has succeeded WILLIAM LEVIN, DR.P.H.,* retired, as director, Public Health Laboratory, Oregon State Board of Health.

JOHN B. BRYSON, M.D., M.P.H.,† formerly director, Milam County (Tex.) Health Department, is now director of the Bell and Williamson County Health Units, with headquarters in Temple and Georgetown, respectively.

FRANCIS S. CHEEVER, M.D.,* former professor of microbiology, Graduate School of Public Health, has been appointed dean, University of Pittsburgh School of Medicine, succeeding WILLIAM S. MCELLROY, M.D., retiring to continue as a special adviser to the chancellor on medical affairs.

RUTH W. DEAN, R.N.,† formerly with a WHO team in the Maternity and Child Health Training and Demonstration Centre in Karachi, Pakistan, is now a general nursing consultant on maternal and child health, Washington State Health Department.

GERALD DYKSTERHOUSE, former sanitary engineering consultant to the Libyan government, is now air pollution and general public health engineering consultant, Charlottesville (Va.) Regional Office, Public Health Service.

CONRAD A. ELVEHJEM, PH.D.,* dean, University of Wisconsin Graduate School, and 1952 winner of an APHA Lasker award, has been appointed president of the university, succeeding EDWIN B. FRED, PH.D.

CHARLES GERHARDT, former technical consultant, CDC, Oklahoma City, is now chief consultant, Communicable Disease Center Services, Charlottesville (Va.) Regional Office, Public Health Service.

LEONARD GOLDWATER, M.D., SC.D.,* professor of occupational medicine, Columbia University School of Public Health and Administrative Medicine, spent from October to December, 1957, giving courses in occupational medicine at the Higher Institute of Public Health, University of Alexandria, Egypt.

OLLIE GOODLOE, M.D.,* has returned as commissioner, Columbus (Ohio) Health Department, following three months as health officer, Phoenix-Maricopa County, Ariz.

CHARLES R. HAYMAN, M.D., M.P.H.,* acting commissioner of health, Territory of Alaska, has resigned to go on active duty as assistant chief, Accident Prevention Program, Public Health Service. Washington, D. C.

ALBERT V. HARDY, M.D., DR.P.H.,* former director, Bureau of Laboratories, Florida State Department of Health, is now assistant state health officer. NATHAN J. SCHNEIDER, PH.D.,† is acting director of the Bureau of Laboratories.

WOODROW HEMPHILL, M.D., who most recently served two years in pediatrics in the Alder Hey Children's Hospital in Liverpool, England, has been appointed director, Bureau of School Health, Baltimore (Md.) Health Department.

GARY D. HUTCHINSON, former student, Iowa State College, is now junior assistant sanitary engineer, Interstate Carrier Sanitation Program, Charlottesville (Va.) Regional Office, Public Health Service.

ROGER JAMES,† former senior public health engineer, serving eastern Washington, is now chief, Environmental Sanitation Section, Washington State Health Department, Seattle.

ANNA J. KALMANOWITZ, R.N.,* former public health nursing consultant, Manhattan Rheumatic Fever and Cardiac Program, New York City, has been appointed the first public health nursing consultant, New York Heart Association.

WARREN J. KAUFMAN, SC.D.,† sanitary engineer, on sabbatical leave from the University of California, is on the staff of the Commission de l'Energie Atomique, the French AEC.

LESLIE W. KNOTT, M.D.,* former chief, Health Professions, Education Branch, Public Health Methods, has been appointed assistant chief, Division of Special Health Services, Bureau of State Services, Washington, D. C., succeeding ELTON S. OSBORNE, M.D.*

HARRY P. KRAMER,† chief, Training Program, Taft Sanitary Engineering Center, has received the first Civil Servant of the Year title for the Sixth Civil Service Region for his work in the field of short-term technical training and for development of a laboratory reference service program.

WILLIAM N. LONG,† former director of sanitation, Gaston County (N.C.) Department of Public Health, is now sanitary engineer consultant, Interstate Carrier Sanitation Program, Charlottesville (Va.) Regional Office, Public Health Service.

HILBERT MARK, M.D.,† former director of Minnesota's Division of Local Health Administration, has been named health commissioner, Toledo, Ohio.

DAVID R. MATHIE, M.D., is health commissioner, Trumbull County, Ohio, succeeding R. L. THOMAS, M.D., resigned.

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* Fellow.
† Member.

CARMEL A. MCKAY, M.P.H.,† is health education consultant, California State Department of Public Health, serving the contract services counties.

RUTH MIGDAL,† former assistant public relations adviser, New York City Health Department, is now MRS. BEN TABER, El Paso, Tex.

GEORGE MITCHELL, D.D.S.,† former staff dentist, Cape May, New Jersey Coast Guard Receiving Station, is now assistant dental consultant, Charlottesville (Va.) Regional Office, Public Health Service.

CLYDE MOTT, former senior administrative consultant, Division of Maternal and Child Health and Crippled Children, Washington State Health Department, has resigned to become executive director, Seattle Speech and Hearing Center.

F. LLOYD MUSSELLS, M.D., M.Hosp.Adm.,† former executive director, Philadelphia General Hospital, has been named director, Peter Bent Brigham Hospital, Boston, Mass.

JOSEPH G. NEAL† has been appointed executive secretary, Minnesota Tuberculosis and Health Association, succeeding E. A. MEYERDING, M.D.,† retired.

MARY J. PFEFFER, former dietitian, Veterans Administration Hospital, Lyons, N. J., has been appointed apprentice nutritionist, Bureau of Nutrition, New York State Health Department.

GERALDINE PIPER,† former associate professor of nutrition, University of Tennessee, is now nutrition consultant, Charlottesville (Va.) Regional Office, Public Health Service.

E. O. PLOEGER, M.D., former screening physician, State Department of Public Assistance in Spokane, has been appointed Spokane County health officer, succeeding the late ARTHUR LIEN, M.D.

RAYMOND W. PRIOR has been appointed personnel officer, Vermont State Department of Health, succeeding RUSSELL P. KETCHAM, now on the personnel staff, Roswell Park Memorial Institute, Buffalo, N. Y.

FRANK REIDER, M.D., D.P.H., former director of training, Division of Personnel, Office of the Surgeon General, PHS is now hospital and medical facilities program director, succeeding RICHARD B. HOLT, M.D., now assigned as chief medical officer, U. S. Coast Guard.

IRVING RIMER, executive director, National Publicity Council for Health and Welfare, has resigned to become coordinator, Department of Information, American Cancer Society. He has been succeeded in the NPC by HAROLD L. WEINER, former director of fund raising and public relations, Connecticut Association for Mental Health.

J. L. RHYNE, M.D., formerly in the private practice of pediatrics in Lumberton, N. C., is now director, Bureau of Child Health, Baltimore (Md.) Health Department.

THEODOR SCHUCHAT, formerly in the office of the Secretary of Health, Education, and Welfare, has been appointed executive director, Social Legislation Information Service, succeeding BERNARD LOCKER, resigned.

P. H. SEEKFORD, M.D., former industrial physician of Nellis, is now health officer, Kanawha-Charleston Health Department, W. Va.

HARVEY L. SHAPIRO, M.P.H.,* former assistant director, Beth Israel Hospital, Boston, has been appointed assistant to the executive vice-president and medical director in charge of professional services, Albert Einstein Medical Center, Philadelphia, Pa.

JOHN B. K. SMITH, M.D., former director of professional education and assistant clinical director, State Mental Hospital, Trenton, N. J., is now chief, Mental Health Section, Alaska Department of Health.

FREDA THEIS, assistant chief, has succeeded C. L. CHISM resigned, as director, Vital Statistics, Nebraska State Health Department.

HARRY UTES, M.P.H.,† is the new health educator, Tacoma-Pierce County (Washington) Health Department.

RICHARD WENZEL, M.D.,† former deputy health commissioner of Columbus, Ohio, is commissioner of the newly organized Marietta-Washington County Health Department.

JAMES L. WHITTENBERGER, M.D.,† professor of physiology and assistant dean of the faculty, Harvard School of Public Health, has been named also the first James Stevens Simmons professor of public health in the school and director of its new Division of Environmental hygiene.

GORDON WILSON, formerly with the Idaho State Health Department, has been appointed senior administrative consultant, Division of Child Health Services, Washington State Health Department, succeeding CLYDE MOTT.

JAMES R. WILSON, M.D., former secretary, Council on Foods and Nutrition, American Medical Association, and professional consultant to the food industry, has been appointed medical consultant, the Glidden Company, concerned primarily with research and other activities in connection with RC Lecithin.

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* Fellow.
† Member.

CALVIN YOUNG, former teacher, Middletown, Ohio, public schools, has been appointed executive secretary, Ohio Mental Health Federation, Cincinnati.

DEATHS

SENIOR MAJOR NOEL W. ELLIS,† public relations director, Salvation Army, Baltimore, Md., on November 7, 1957 (Health Officers Section).

LT. COLONEL LESTER J. GORMAN (VC) † of Lackland Air Force Base, Tex., on February 10, 1958 (Epidemiology Section).

FRANK L. KELLY, M.D., Dr.P.H.* Dr. Kelly was city health director of Berkeley, Calif., for 31 years and assistant professor of public health administration at the University of California for 34 years (Health Officers Section).

CAROLINA RAMSAY RANDOLPH † on March 1. Miss Randolph was associated with the Commonwealth Fund of New York from 1933 until her retirement from the public health field in 1955 (Unaffiliated).

JAMES A. STALBIRD,† supervisor of milk sanitation, New York State Department of Health, Albany (Engineering and Sanitation Section).

KARL H. WILBER † of South Amboy, N. J. (Engineering and Sanitation Section).

CONFERENCES AND DATES

American Public Health Association, 86th Annual Meeting. St. Louis, Mo. Headquarters: Kiel Auditorium, October 27–31.

State and Regional Public Health Meetings:

Arkansas Public Health Association in conjunction with Southern Branch, APHA. Hotel Marion, Little Rock. May 6–9.

California, Northern. Castlewood Country Club, Pleasanton. May 4.

Colorado Public Health Association. Grand Junction, Colo. May 15–16.

Idaho Public Health Association. Shore Lodge, McCall. May 9–11.

Indiana Public Health Association. State Board of Health Building, Indianapolis. May 8–9.

Kansas Public Health Association. Lamer Hotel, Salina. May 14–16.

Michigan Public Health Association. New Wolverine Hotel, Detroit. May 7–9.

Missouri Public Health Association. Tiger Hotel, Columbia. May 5–7.

Montana Public Health Association. Civic Center Health Department, Great Falls. May 1–2.

New England Health Institute. University of Connecticut, Storrs, Conn. June 18–20.

New Mexico Public Health Association. Clovis. May 5–7.

New York City, Public Health Association of. Carnegie Endowment Bldg., New York, N. Y. June 4.

New York State Public Health Association. Rochester. June 9–12.

North Carolina Public Health Association. Sir Walter Raleigh Hotel, Raleigh. May 29–30.

Ohio Public Health Association. Neil House, Columbus. May 20–21.

South Carolina Public Health Association. Ocean Forest Hotel, Myrtle Beach. May 22–24.

Utah Public Health Association. University of Utah, Union Bldg. Salt Lake City. May 12–13.

Virginia Public Health Association. Roanoke Hotel, Roanoke. May 20.

West Virginia Public Health Association. Waldo Hotel, Clarksburg. June 5–6.

Southern Branch, APHA, in conjunction with Arkansas Public Health Association. Hotel Marion, Little Rock. May 6–9.

Western Branch, APHA, in conjunction with the Canadian Public Health Association. Hotels Vancouver and Georgia, Vancouver, B.C., Canada. May 18–23.

Meetings of Other Organizations Coming in May, June, and July:

American Diabetes Association. San Francisco, Calif. June 21–22.

American Hearing Society. San Francisco, Calif. June 3–6.

American Home Economics Association. Philadephia, Pa. June 24–27.

American Medical Association. San Francisco, Calif. June 23–27.

American Nurses' Association. Atlantic City, N. J. June 9–13.

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* Fellow.
† Member.

American Physical Therapy Association. Olympic Hotel, Seattle, Wash. June 15–20.

American Society of Medical Technologists. Schroeder Hotel, Milwaukee, Wis. June 15–20.

Association for the Aid of Crippled Children. New York, N. Y. May 5.

Canadian Public Health Association in conjunction with Western Branch, APHA. Hotels Vancouver and Georgia, Vancouver, B.C. Canada. May 18–23.

International Cancer Congress (Seventh). London, England. July 6–12.

International Congress of Child Psychiatry. Lisbon, Portugal. June 16–20.

International Congress on Home Economics (Ninth). College Park, Md. July 28–August 2.

International Union for Child Welfare. Brussels, Belgium. July 20–26.

Medical Library Association. Rochester, Minn. June 2–6.

NAPT Commonwealth Chest Conference. Royal Festival Hall, London. July 1–4.

National Association of Sanitarians, 22nd Annual Educational Conference. Sheraton-McAlpin Hotel. New York, N. Y. July 28–Aug. 1.

National Conference on Public Health Training. Washington, D. C. July 28–30.

National Conference on Social Welfare. Chicago, Ill. May 11–16.

National League for Nursing. Biennial Convention. Atlantic City, N. J. June 9–13.

National Social Welfare Assembly. Chicago, Ill. May 8–11.

National Tuberculosis Association. Philadelphia, Pa. May 19–21.

Purdue Industrial Waste Conference. Purdue Memorial Union Building. Lafayette, Ind. May 5–7.

World Family Congress. Paris, France. June 16–23.

World Health Organization. Annual Assembly. Minneapolis, Minn. May 26–June 14.

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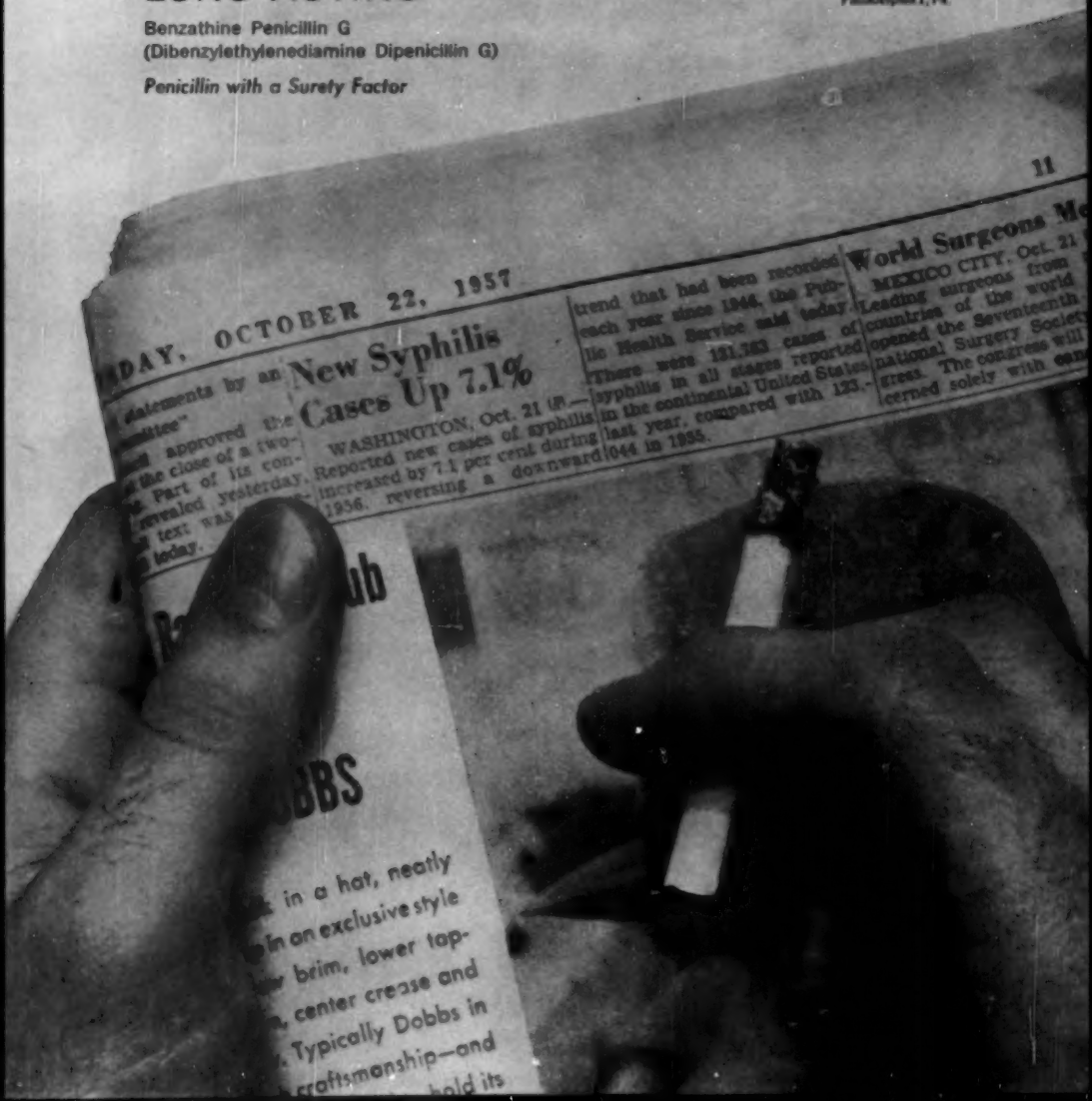

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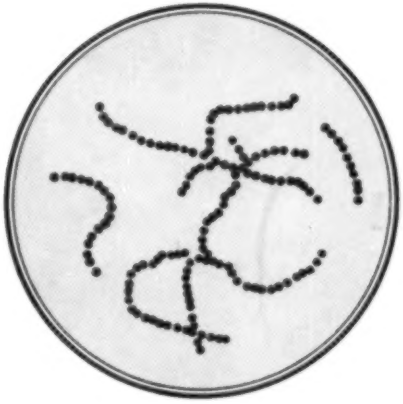

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